EXHIBIT 3

Report of Douglas L. Weed, M.D., M.P.H., Ph.D.

1. My name is Douglas Weed. I am a physician-epidemiologist with 25 years of experience in doing scientific and epidemiologic research and in training others in these same endeavors. Epidemiology is a discipline of medicine and public health concerned with the determination of the causes, among populations, of localized outbreaks of infection, or of toxic disorders, or of any other diseases. As a physician, I have also been trained to make diagnoses on individual patients. My specific area of expertise is the methodology of determining causation, both general and specific. I hold faculty appointments in the Department of Epidemiology in the School of Hygiene and Public Health at Johns Hopkins University and in the Department of Preventive Medicine and Biometrics at the F. Edward Hebert School of Medicine of the Uniformed Services University of the Health Sciences. Biometrics is another name for biostatistics, the study of quantitative probabilistic phenomena in health-related matters. A copy of my CV is attached as Exhibit A.

2. I have been retained by ConAgra Foods, Inc. ("ConAgra") to consult generally on medical, epidemiologic, and causation issues raised in the various cases that have been filed against it in connection with its manufacture of Peter Pan and certain Great Value peanut butter. I have been asked to opine in particular on:

a) what methodology should be employed to determine how to evaluate the claim of any plaintiff who ate ConAgra peanut butter and who, within the incubation period of *Salmonella* infection, developed symptoms consistent with salmonellosis but who lacks objective evidence of contracting salmonellosis with any of the identified three outbreak strains of *Salmonella* Tennessee (an "undocumented claim"); and

b) whether, if that methodology is correctly applied, such a plaintiff more likely than not did indeed develop *Salmonella* Tennessee salmonellosis secondary to eating ConAgra peanut butter. I have reviewed Plaintiffs' expert disclosure; CVs for all of plaintiffs' experts; the reports of Messrs. Fernholz and Farley, of Dr. McDonald, of Mr. Reynolds with exhibits; of Dr. Riley with exhibits, of Dr. Schaffner with exhibits, and of Dr. Stratton with exhibits; and the depositions of Drs. DuPont, Riley, Schaffner and Stratton, and of Messrs. Gentle, Kimbrell and Matis. I have also reviewed the Power Point slides dated 9/20/07, the 2/1/08 Memorandum for Record, and the 8/3/09 report of Mansour Samadpour, Ph.D., and of Gregory Ma.

3. I am being compensated at a rate of $450 per hour, and I am limiting the views offered here to only those opinions that I can express to a reasonable degree of medical, epidemiological, and/or scientific certainty. In the last four years, I have testified twice. See list attached as Exh. B.

4. In this report, I shall evaluate the plaintiffs' analysis of causation. First, I shall present what is needed to establish causation in a scientifically valid fashion. Next, I shall apply those methodological rules to the facts here. I shall turn to a consideration of the statistical likelihood that an undocumented claim is indeed causally related to eating peanut butter. From well-established data, including CDC reports, I shall offer lists of organisms other than *S.* Tennessee that can create a clinical picture similar to that caused by the organism at the center of these cases; non-infectious disorders that can do the same; lists of foods other than peanut butter that can become contaminated; lists of locations at which outbreaks have occurred; and lists of mechanisms by which foods can become contaminated. All of this information

supports my central conclusion: that unless a plaintiff can show by culture that he became infected with *Salmonella* Tennessee from ConAgra peanut butter, he is dependent upon data that are inherently insufficient to establish that, more likely than not, tainted peanut butter caused his symptoms. Culture is the isolation, growth, and identification by standard laboratory methods of a particular microbe, either from a patient's body fluid or, in cases such as these, from peanut butter he or she consumed. At various points I shall touch upon the opinions offered by the plaintiffs' experts, as described in their reports and testimony. My conclusion is that the plaintiffs' experts' reports and testimony do not set forth a method for making claims about specific causation. Because the claims made by the plaintiffs' experts regarding specific causation are made in the absence of a valid method, they are neither scientifically valid nor reliable.

Methodology: How To Prove Specific Causation

5. The objectivity of science, and hence its validity and reliability, arise not from the credentials and authority of its practitioners, but rather from its methodology. Claims about either general or specific causation are objective insofar as they arise from well-established methodologies. Scientifically valid methods to establish both general and specific causation are available.

6. All parties agree that *Salmonella* in general, as well as *S.* Tennessee specifically, can cause an acute gastrointestinal illness when the organism is ingested at levels at or exceeding the infectious dose. I will not address that issue further. What I will address is this question: Given an individual with an acute gastroenterological (GI) illness, how can we determine whether it was caused by *S.*

Tennessee from ConAgra peanut butter, and hence by an outbreak strain with one of the three established genetic fingerprint patterns, technically termed pulsed field gel electrophoresis ("PFGE")?

7. Claims of causation must be based on valid and reliable methodology. That methodology requires meeting each of five criteria. *See*, Cole P., "Causality in epidemiology, health policy, and law," 27 *Environ. L. Rep.* 10279-10285 (1997)

a. There must be an established general causation relationship between an exposure and the disease of interest. CDC's study of this outbreak established that, in populations, eating contaminated peanut butter caused an acute salmonellosis secondary to *Salmonella* Tennessee with one of three possible PFGE patterns. CDC's study did not establish either 1) causation in any individual not included among the 714 cases or 2) whether consuming ConAgra peanut butter causes acute, non-specific intestinal illnesses in populations.

b. Each individual must have been exposed to the putative causal agent. Here, that means ConAgra peanut butter contaminated with an outbreak strain of *Salmonella* Tennessee at a concentration equaling or exceeding the infectious dose.

c. After eating peanut butter manufactured during the period when some of ConAgra's product was tainted, each plaintiff must have experienced an acute GI illness within 12-72 hours, the incubation period for salmonellosis.

d. Because an acute GI illness could have multiple causes, alternative causes must be assessed and excluded. A plaintiff must be able to show that other causes do not account for his symptoms.

e. Finally, causation must be more likely than not. Stated mathematically, causation must be demonstrated at a probability of 51% or greater. A probability of 30%, for example, is not more likely than not; to the contrary, it is decidedly less likely than not. Moreover, 51% probability means: 51% probability that, in any individual plaintiff, the causal hypothesis is true.

Applying the Methodology of Causation to the Undocumented Claim:

8. I now apply the methodology set out above to an undocumented case.

a. General causation: Plaintiffs need not prove that *Salmonella* Tennessee can cause GI illness. It can. What plaintiffs need to prove is that, more likely than not, in the absence of culture, ConAgra peanut butter causes an acute, non-specific GI illness.

b. Exposure: A plaintiff claims to have eaten ConAgra peanut butter. For purposes of this analysis, I shall assume he can prove it. But that does not, without more, meet the test of exposure, because there is no evidence that all the ConAgra peanut butter was contaminated. To the contrary, based on test results, most of the peanut butter ConAgra produced between July 2006 and Feb. 2007 was wholesome. A jar of peanut butter not contaminated with living *Salmonella* organisms in numbers sufficient to induce symptoms is a jar unable to cause salmonellosis. Through testing performed by an accredited testing laboratory retained by both ConAgra and a number of plaintiffs, the contamination rate in a set of 1274 samples was 2.28%. That figure, however, was arrived at by considering testing done not on all ConAgra peanut butter, nor even on a representative sample. Instead, it is the fraction of peanut butter testing positive from that subset of product sold to

consumers who believed it had made them ill and represented by counsel willing to submit the jar for testing. In other words, this was a biased sample: these were jars suspected of being contaminated. Using its own BAM method, FDA conducted random sampling of peanut butter manufactured in Sylvester and found only one positive in 1653 samples, a ratio not of 2.28% but, rather, of 0.06%. FDA BAM is considered the gold standard for food testing. Plaintiffs have suggested no better method, nor, in most cases, subjected their peanut butter to any competing test. Based on the data available, then the likelihood of actual contamination of a jar of ConAgra peanut butter with *S.* Tennessee without culture confirmation is, at most, between 2 and 3%. The 2.28% figure, based on a sample heavily biased towards the plaintiffs' side of the case, is 38 times higher than the contamination rate CDC reported from random sampling of ConAgra peanut butter. A final check is the relatively tiny number of culture-demonstrated cases of *S.* Tennessee salmonellosis as a fraction of ConAgra's production of nearly 100 million jars during the relevant time period. Exposure to ConAgra peanut butter is not exposure to contaminated peanut butter.

c. The individual plaintiff must experience the illness of interest, namely gastroenteritis. Although this is typically a low hurdle for plaintiffs to clear, it must be remembered that both non-infectious and infectious agents cause acute GI illnesses.

d. Alternative causes. Acute GI illnesses have a great many non-infectious causes wholly unrelated to peanut butter. Some are described in greater detail below. Even if we assume the cause of a plaintiff's illness is infectious, the plaintiff must still exclude non-*S.* Tennessee infectious causes to show specific

causation. If he cannot, there is no basis to deny that a claimant's disease was caused by a rotavirus, for example, or by any one of the many other causes entirely unrelated to ConAgra peanut butter.

e. More likely than not: This portion of the analysis requires consideration of statistical data as set out below. That analysis justifies the following conclusions: The likelihood that an undocumented claimant was exposed to contaminated ConAgra peanut butter is no more than 2.28%. The likelihood that an acute gastrointestinal illness is *S.* Tennessee salmonellosis is no more, and almost certainly less, than 3.45%. The likelihood that in undocumented claims possible alternative causes can be excluded is difficult to quantify but is close to zero. In Sum, undocumented claims cannot show that it is more likely than not that ConAgra peanut butter caused the symptoms. Nothing CDC has ever published supports the contrary viewpoint.

I turn now to showing how these figures are derived:

Proof of Specific Causation

9. Estimates vary, but a conservative, easily justified conclusion is that Americans experience approximately 0.65 episodes of acute GI illness per person per year. As CDC uses the term, an acute GI illness means a case of diarrhea or vomiting or both without concurrent respiratory symptoms. Given this rate of acute GI illness, CDC estimates that in 1999 there were approximately 193,000,000 cases of acute GI illness in the United States. Of these, it is estimated that approximately 1.4 million were attributable to salmonellosis.

10. Salmonellosis is the term given to infection with any one of the more than 2500 identified serovars of the bacterium known as *Salmonella*. *Salmonella* can infect humans from exposure to either fellow humans or to a wide variety of animals. Quite often, however, humans contract the infection by eating contaminated foods or drinking contaminated water. All such foodborne infections cause symptoms similar to the acute GI illness described above. I will turn to a more detailed analysis of these numerous alternative causes later in this report; for now, I will focus my attention on CDC's investigation of the outbreak.

11. By statistical analyses applied to cultures and to genetic fingerprinting of both peanut butter and body fluids from patients, CDC determined that, beginning on July 29, 2006, some individuals who ate certain ConAgra peanut butter came down with salmonellosis because the peanut butter had become contaminated with *Salmonella enterica* serovar Tennessee ("S. Tennessee"). Such illnesses decreased substantially after ConAgra's February 14, 2007 voluntary recall. CDC was able to culture that organism from both the product itself and from the stool or blood or urine of patients. The genetic fingerprints of the microbes recovered from patients' body fluids matched those isolated from a portion of ConAgra's peanut butter.

12. No public health authority has ever associated ConAgra peanut butter with any pathogen except *Salmonella* Tennessee, one of the rarer *Salmonella* serotypes. Where a plaintiff has a body fluid culture positive for the organism's outbreak strain, and where an organism identical by genetic fingerprinting is cultured from his peanut butter, it is highly likely (though not beyond all doubt) that the cause of that case of salmonellosis was indeed consumption of the tainted product. I do not

address those cases in any detail here, because the likelihood that specific causation exists is high. My concern, rather, is with those cases in which such evidence is lacking. Many plaintiffs claim they consumed ConAgra peanut butter manufactured at relevant times. Most also complain of symptoms similar to those commonly associated with salmonellosis and many other acute gastrointestinal illnesses. The question, though, is whether they are able to prove specific causation without demonstrating any form of *Salmonella* in their peanut butter, or in any body fluid, or both, and whether that organism is the outbreak strain. These undocumented claims are the cases to which I turn my attention.

13. Based on CDC data, between 1996 and 2005 there were on average approximately 52 cases of *Salmonella* Tennessee salmonellosis per year in the United States. The CDC reported that following the outbreak of *S.* Tennessee salmonellosis associated with certain ConAgra peanut butter, there were 714 cases of outbreak-specific *S.* Tennessee salmonellosis in 2006-'07.

14. For a number of reasons, it is highly likely that to some unknown extent both of these figures underestimate the actual number of cases of *S.* Tennessee salmonellosis between 1996 and 2007. It is possible to estimate the true number on the basis of assumptions commonly made in the literature. Various multipliers, arrived at by various means, have been used by CDC and by others to derive better estimates from the cases confirmed by CDC. One such multiplier in common use is 9.8. The highest multiplier used with any degree of frequency in the scientific literature is 67.7. Some advocate using the mean of these two numbers, 38.6. If we use the first of these multipliers, the lowest of the three, the total number of cases of

Salmonella Tennessee attributable to the outbreak was: 714 x 9.8 = 6997. If instead we use the mean figure as our multiplier, then we derive an estimate of approximately 27,560 cases. If we use the most generous figure, the estimated number of cases is 48,338. The most conservative estimate of the fraction of acute gastrointestinal illness attributable to the outbreak is 6997/193,000,000=0.0036%. Using the mean multiplier figure, the percentage of peanut butter-related cases becomes 27,560/193,000,000=0.014%, four times higher but still very small. Even using the most generous multiplier, the calculation becomes 48,338/193,000,000= 0.025%. The worst case scenario, in other words, is that the probability an undocumented claim is related to peanut butter is less than 0.03%. Stated differently, the odds are greater than 3000:1 that the cause of any given acute gastrointestinal illness was something other than disease related to the outbreak at issue here. In yet other terms, it is 99.975% certain that the cause of an undocumented case was something other than S. Tennessee associated with this outbreak. Thus, where there is no culture confirmation of *Salmonella* either in peanut butter or in body fluids of a plaintiff presenting with acute GI illness--that is, one with symptoms resembling those of salmonellosis but without microbiologic proof that the organism was present--the likelihood that the plaintiff's illness was caused by *Salmonella* Tennessee is between 0.0036% and 0.025%.

15. As discussed in more detail below, the great majority of those complaining of symptoms consistent with salmonellosis do not in fact have salmonellosis. They have something else. Using the conservative estimate above, the approximately 1.4 million cases of salmonellosis per year are a mere 0.07% of the total of acute GI illnesses. Numerous other organisms can cause such illnesses; a great

many non-infectious problems can do so as well. That means that the odds against the possibility that a case of acute gastrointestinal illness actually is caused by some form of salmonellosis are approximately 14,000:1. Solely to illustrate how unlikely it is that an undocumented claim is related to *Salmonella* Tennessee in Con Agra peanut butter, however, I will make the wholly unwarranted assumption that every plaintiff in these cases actually had salmonellosis--that is, that his or her symptoms were caused by infection with one of the numerous serotypes of *Salmonella.* Even on the basis of such a fantasy, the likelihood that such a case is related to *Salmonella* Tennessee in ConAgra peanut butter, using the 9.8 multiplier, is 6997/1.4 million=0.5%. Using the mean figure multiplier, 38.6, the probability becomes 27,560/1.4 million=1.97%. Using the most generous multiplier, the relevant ratio is 48,338/1.4 million= 3.45%. Stated differently, if we pretend that all undocumented claims were truly salmonellosis cases, and use the most plaintiff-friendly calculation possible, the odds against specific causation are 28.9:1. Even based upon the false assumption stated, we can be 96.54% sure that an undocumented case was not caused by *Salmonella* Tennessee in peanut butter.

16. Moreover, these figures completely ignore the fact that not all the peanut butter ConAgra manufactured during the relevant time frame was contaminated. As noted, the contamination rate was only 2.28%. Using only the most liberal of the estimates that an undocumented case could be a true case of S. Tennessee salmonellosis, the probability that a plaintiff consuming ConAgra peanut butter and developing symptoms within the proper timeframe developed those

symptoms because of that consumption is only (3.45%) (2.28%) = 0.00787%. Stated differently, the odds against specific causation in such a case are 12,706:1.

17. According to CDC, the outbreak central to this case began on July 29, 2006. On February 14, 2007, ConAgra voluntarily recalled its product. The interval between these dates is a period of 200 days, or 54.8% of a full year. The calculations above have drawn on estimates of the burden of GI illness in the United States for a full calendar year. We can logically assume that the total number of cases of acute GI illness in a 200-day period, then, would be (200/365)(193,000,000)=105,764,000. Substituting this figure for 193,000,000 in the calculations above does not alter the conclusion that an undocumented case is highly unlikely to be peanut butter-related. The ratio of salmonellosis cases to acute GI illness cases would be unaffected, since both the numerator and denominator of that ratio would be reduced by the same amount. The ratio of peanut butter testing positive is of course also unaffected. Only if we abandon our plaintiff-favoring assumption that every single plaintiff had salmonellosis and rely instead upon the ratios of true outbreak cases (under the various multipliers considered above) to total GI illness burden does change the arithmetic, but not enough to matter. If we substitute 105,764,000 for 193,000,000 in the calculations above, and if we use the most generous multiplier, we conclude that the probability that an undocumented case is peanut butter-related is 48,338/105,764,000=0.046%. This is of course a larger figure than 0.025%, but implies that in an undocumented case the odds against specific causation under the assumptions most favorable to plaintiffs are >2000:1. Stated slightly differently, even when we assume that the outbreak was only about 6 ½ months long, and even under

assumptions designed to favor plaintiffs as heavily as possible, we can be about 99.95% sure that an undocumented case is unrelated to peanut butter. Note, too, that in these calculations I used 200 days rather than 365. Cases have been reported after the Feb. 14, 2007 recall date. To the extent that the outbreak period exceeds 200 days, the denominator in these calculations grows larger, and the fractions smaller.

18. There is one more step we can take to err as much as reasonably possible on the side of improving the likelihood that an undocumented case could indeed be peanut butter-related. I will calculate that probability by departing from established statistical practice to use what I will call a weight-of-the-evidence approach: instead of multiplying the probability that an undocumented case is peanut butter-related by the probability that a given jar of peanut butter is tainted, I will add these two probabilities. Under that approach, the likelihood that a plaintiff consuming ConAgra peanut butter and developing symptoms within the proper timeframe developed those symptoms because of that consumption becomes 3.45%+2.28%=5.73%. Thus, even if we accept every plaintiff-favoring assumption above as actually true, and even if we use mathematical methods chosen to strengthen the plaintiffs' position, the most favorable conclusion that plaintiffs can assert still leaves us 94.27% sure that an undocumented case is unrelated to peanut butter. In other words, under all these assumptions, and using unconventional math deliberately to help the plaintiffs, the odds against specific causation are still approximately 17.5:1.

19. Before we leave the statistical analysis demonstrating the improbability of specific causation in an undocumented case, let me make one other observation. The estimate of 193,000,000 cases of acute diarrheal illness per year (or 105,764,000

in 200 days) is an oft-cited, highly conservative figure. It is one of many found in the scientific literature, however, it is one clearly near the lower end of the spectrum. Other well-respected researchers have offered estimates considerably higher. If, of course, we develop estimates using any of these larger figures, the probability that an undocumented case is peanut butter-related becomes even smaller.

Practice of Medicine v. Practice of Science

20. The discussion so far has presented in broad outline a description of the requirements science imposes upon those asserting specific causation, and the difficulties plaintiffs face in meeting those requirements. I turn now to a consideration of some of the reasons why meeting those requirements is so difficult: the difference between the goal of the physician evaluating a patient and that of an epidemiologist investigating a foodborne disease outbreak; and the difference between either one and the scientist's attempt to establish specific causation.

21. The physician caring for a patient seeks to make a diagnosis as an aid to making judgments about therapy and prognosis. In diagnosis, however, the doctor seldom seeks or needs to ascertain the specific cause of the patient's disease. Many times the specific cause is not particularly important to the physician, or to the patient, because quite often that information affects neither the treatment nor the prognosis. In many cases, the state of the art precludes such a determination anyway. Usually, a physician may correctly advise his patient whether or not he knows the cause of the malady based on the scientific method. In the specific context of a foodborne illness, the physician ordinarily need do no more than diagnose gastroenteritis – a very common, self-limited disorder. Once that diagnosis is made, the physician is able to

do his job: to advise the patient on how to get better. There may be a better chance that through culture, especially of stool, the treating physician would be able to identify a microbial cause, but often he has little or no reason to do so. The testing required could cause some modest discomfort (physical or psychological) to the patient, and perhaps at least minimal risk; it also consumes resources. If the result were likely to have an impact on therapy, considerations such as these would not deter the physician. Rarely is that the case, however. Without any specific therapy, the great majority of acute GI illnesses are self-limited. Treatment decisions seldom hinge on a determination of the microbial cause, so there is typically no justification to seek one. More important in this context, even where the physician takes the time and trouble to identify a microbial cause, he hardly ever attempts to determine how the patient became infected with it.

22. Epidemiology is not clinical medicine: the unit of measurement is not the individual but a defined population over a specified period of observation. In epidemiology, determining causation is the primary aim, but on a population basis, not an individual one. More important, the epidemiologist focuses not upon specific causation, but upon general causation. In service to public health, the epidemiologist tries to determine the microbial cause of a foodborne outbreak of disease, and the food harboring it, because that knowledge will enable him to alert the public to the risks of consuming that food. In these cases, in fact, the reason we can be confident that tainted peanut butter is capable of causing salmonellosis is that CDC carried out a proper epidemiologic investigation to answer that very question. Moreover, the epidemiologist errs on the side of early action to minimize the public health impact of

a possible outbreak. Protecting the public health demands no less. In an era of terrorist attacks against even the U.S. homeland, including the threat of an attack on the food supply, the need to respond quickly to foodborne illnesses has increased over its already high baseline. Epidemiologists may and properly do subordinate questions of specific causation in individual cases to advancing the goal of early warning. Not surprisingly, a case classified as "probable" for purposes of deciding to report to CDC may be re-classified as "not a case" when laboratory results are available.

23. The aim of science is explanation of observed phenomena, specifically including identification of causes of such phenomena. Science has developed methods to identify such explanations correctly. Accurate identification of specific causation, though a subject of legitimate scientific inquiry, is not easily pigeon-holed within the confines of a single specific academic discipline. Although many of the most prominent workers in the field have been epidemiologists, the key consideration for establishing specific causation is not the specialty of any given individual but, rather, the application of a valid and reliable scientific method as outlined above.

To this point, we have considered the methodology needed for a scientifically valid analysis of specific causation in an undocumented case, and seen that it is highly improbable that any such case is peanut butter-related. I turn now to considering why, from the standpoint of human biology, this conclusion is correct.

Diagnosing Salmonellosis

24. The symptoms of salmonellosis can include diarrhea, abdominal discomfort, nausea, vomiting and sometimes fever. Even if arising in the context of an outbreak of foodborne illness, however, these symptoms do not allow one to

diagnose salmonellosis in any individual. These symptoms are far too common, and associated with far too many other conditions, to allow such an inference to be drawn. Dr. Riley estimates that, at any given time, 5% of Americans have diarrhea. If that's correct, it's easy to see the difficulty plaintiffs face here – at any given time, 15,000,000 Americans have diarrhea, whether they've eaten peanut butter (or any other food) or not. Not all cases of diarrhea, abdominal discomfort, nausea, or vomiting are caused by food contaminated with *Salmonella*, much less with the rare *S.* Tennessee of the outbreak strains. Many other infectious processes, bacterial and otherwise, cause very similar symptoms. So do many non-infectious diseases.

25. This is not to suggest that taking a patient's history is without value. Although no one can establish specific causation on the basis of history alone, some cases can be properly excluded on that basis. An example might help illustrate this idea. The incubation period is the interval between exposure to a possible etiologic agent (here, ingestion of tainted food) and the onset of symptoms. If a patient's symptoms arose at times outside the organism's incubation period, which in *Salmonella*'s case is 12-72 hours, that militates against causation by the organism. In one of the cases I have seen, the plaintiff claims that symptoms began as early as 15 minutes after ingestion of the product. If that is true, the ingestion and the symptoms bear no relationship to each other; eating peanut butter was mere coincidence. *Salmonella* simply does not act that fast. I can rule out specific causation in that case on the basis of history alone. Plaintiffs' experts claim that there have been reports of patients developing symptoms as early as 6 hours or as late as several weeks after ingestion. Possibly so, but these instances are extremely rare. The vast majority of

cases will satisfy the established incubation period. As another example, a characteristic of infection with a specific strain of *Salmonella* is that the infection confers lifelong immunity upon the patient. In one case I reviewed, a plaintiff claimed to have become ill from peanut butter not once but three separate times, several months apart. Such a plaintiff potentially could have had *Salmonella* Tennessee salmonellosis on one of those occasions, but not the others. In cases such as these, history can rule out disease related to consuming peanut butter, but cannot rule it in.

ConAgra Peanut Butter *Salmonella* Tennessee Salmonellosis

26. These claims against ConAgra assert that its peanut butter became contaminated with *Salmonella*, a bacterium, and more specifically with one serotype: *Salmonella* Tennessee. A serotype is a group of internally related microorganisms distinguished by a common set of antigens on their surfaces. An antigen, in turn, is any substance foreign to the body that evokes an immune response either alone or after forming a complex with a larger molecule (such as a protein). In investigating *Salmonella* outbreaks, epidemiologists serotype the organism. Otherwise, there would be little benefit in identifying an outbreak. There would be no way to derive benefit from knowing that *Salmonella* is infecting some fraction of the population if we did not know the serotype (a/k/a serovar). To know the serovar, however, one must first recover the organism: i.e., culture it. Each of *Salmonella*'s many species or subspecies is a potential human pathogen; that is why salmonellosis can be caused by any of them. The commonest serotypes of *Salmonella*, accounting for about 34% of all lab-confirmed cases, are *S. enterica* serotype Typhimurium and *S.* Enteritidis. *S.* Tennessee, in comparison, is a relatively rare organism. The clinical picture (history,

physical findings), however, is identical in all [non-typhoidal] forms of salmonellosis, irrespective of serotype. Moreover, although these cases focus on tainted peanut butter, *Salmonella* is much more likely to contaminate dairy products, meats, and produce. *See* below.

27. Contamination with a rare organism is not the only unusual aspect of the outbreak that is the focus of this litigation: this was the first reported outbreak of foodborne illness caused by peanut butter consumption in the U.S. In fact, the outbreak was only the second on record in which peanut butter was a vector for *Salmonella*. In part because the problem is uncommon, determining the association between illness and food took much effort, over a period of months. In the fall of 2006, PulseNet, the national subtyping network for foodborne disease surveillance coordinated by CDC, detected a slowly rising increase in cases of *Salmonella* Tennessee. With the help of state and local health departments, CDC embarked on an extensive investigation using state-of-the-art techniques. OutbreakNet, the national network of public health officials coordinated by CDC, investigates enteric disease outbreaks. Outbreak Net worked for several weeks to identify the food vehicle. After the causative organism was cultured from individual consumers, it was serotyped in public health laboratories. CDC then used pulsed field gel electrophoresis ("PFGE") to subtype. PFGE is a technique for separating an organism's DNA molecules to permit genetic fingerprinting. It is commonly considered the gold standard in epidemiologic studies of pathogenic organisms, especially in identifying the causes of foodborne illnesses. PFGE patterns of *Salmonella* Tennessee strains isolated from patients were uploaded from state health department databases to CDC databases.

CDC eventually articulated a case definition: infection with *Salmonella* Tennessee with a PFGE pattern matching one of three outbreak patterns in a person residing in the U.S. with symptom onset on or after 8/1/06 (or, where the onset date was unknown, *Salmonella* Tennessee isolated on or after 8/1/06). CDC's investigation, then, established that the outbreak began in August, 2006. Despite a nationwide search, only 714 documented cases of peanut better-associated *Salmonella* Tennessee salmonellosis were identified. As discussed above, while this was likely an underestimate, under any reasonably justifiable multiplier it was not enough of an underestimate to change the conclusion that without culture support a set of symptoms consistent with salmonellosis fails to prove specific causation.

Culture is Key

28. Given the numerous possible etiologies for acute GI illnesses, and given that the history and physical findings of each are often very similar, laboratory testing is needed to determine which diagnostic possibility is most probable. Specifically, a positive culture is necessary, although not always sufficient, to prove infection. A positive culture not only demonstrates the presence of an organism; it permits identification of the genus of the organism present. In diagnosing salmonellosis, a culture of the patient's stool is generally the best technique, because when a patient has a *Salmonella* infection, it is more likely to be identified through stool culture than by any other single method. In GI disorders, cultures can be done on stool, urine, or blood. Culture can sometimes detect microbial pathogens present in numbers too small to cause disease.

29. In his report, Dr. Stratton writes that "*Salmonella*…is colorless, odorless, microscopic, and not detectable by normal senses." Dr. Schaffner and Dr. Riley say much the same. They are right, but the same is true of substantially every other microbial pathogen. That is part of why culture is indispensable for the identification of such microbes. The evaluation of a microbial cause of illness depends upon culture, for by definition microbes cannot be sensed by humans.

30. Relying on Voetsch, et al., "FoodNet Estimate of the Burden of Illness Caused by Nontyphoidal *Salmenella* Infections in the U.S.," 38 (Suppl. 3) *CID* S127-134 (2004), Dr. Stratton suggests that "stool cultures often result in false negative findings." Dr. Schaffner and Dr. Riley cite to the same piece. One of plaintiffs' experts complains that the testing used is "not 100% sensitive." That statement sets up a straw man: no such test exists. Culture nevertheless remains the best technique, the "gold standard" for determining whether infection is present and if so with what organism. In relying on the Voetsch article, plaintiffs' experts tacitly concede as much. Dr. Voetsch and his colleagues point out that "[i]n recent years, new strains of *Salmonella* … have emerged in the U.S. and have increased in prevalence." *Id.* at S127. But for culture, those new strains would not have been isolated or identified. The authors plaintiffs' experts cite acknowledge that culture is key: "Surveillance for culture-confirmed *Salmonella* infection is important for monitoring incidence trends and detecting outbreaks of disease." *Id.* (emphasis supplied). Voetsch et al. also note that "The 1997 survey of microbiology laboratories in the Food Net areas showed that all laboratories routinely tested stool specimens submitted for culture for *Salmonella*." *Id.* at S132 (emphasis supplied). Since the authors relied on "Food Net population-

based active surveillance surveys to estimate the actual number of nontyphoidal *Salmonella* infections…" *Id.* at S128, it is fair to infer that they approve of the approaches those laboratories take to identification of cases of salmonellosis. That approach is culture. The CDC's case definition for this very outbreak specifies a PFGE pattern; such a pattern could be found only after the organism is cultured. It follows that CDC requires a culture to define a case. If as Dr. Stratton argues stool cultures are only 70% accurate, not only is that accuracy rate sufficient for the authors Drs. Stratton, Schaffner and Riley all cite as authorities, but the accuracy of identification of infection without culture cannot possibly be as good as the accuracy with cultures. The article on which all three experts rely, moreover, says nothing whatever about where this 70% figure came from, nor against what other indicator stool cultures were tested to derive the estimate quoted. In fact, Voetsch, et al. freely admit their estimate has not been validated and could well be too low: "Further studies are needed to confirm this [70%] estimate; if the actual sensitivity is higher, our calculation overestimates the burden of illness imposed by *Salmonella*." *Id.* at S132. One other corollary is that my 3.45% figure, supra, ¶¶8 and 15, then also would be too high— applying even the most generous multiplier, the probability that an undocumented case was related to ConAga peanut butter would be even smaller. Finally, Voetsch, et al. say at a different point in their article that the accuracy of stool culture is actually 70-90%, Id. at S129, suggesting both a) a range of estimates, rather than a single value; and b) rather impressive accuracy, especially at the higher end of the range. Regardless, that range is well within a reasonable degree of scientific certainty.

Pulsed Field Gel Electrophoresis

31. Many epidemiologic studies require not merely culture confirmation of the suspected organisms, but the correct PFGE patterns as well. That is the approach CDC took here. Without culture, salmonellosis cannot be established. Without serotyping, a *Salmonella* cultured in the lab cannot be speciated; here, that means there would be no way to distinguish *S.* Tennessee from any of its > 2500 cousins. In writing about new strains of *Salmonella* that have emerged in recent years in the U.S., Dr. Voetsch and associates implicitly recognized the importance of serotyping. They observed that the "multidrug-resistant *S.* serotype Typhimurium ... and *S.* serotype Enteritides phage type 4," *Id.* at S127, would not have been recognized without it. Even serotyping, however, falls short of the level of precision required in investigating foodborne disease outbreaks. Without PFGE, the strain of *S.* Tennessee actually responsible for this specific outbreak, and hence, allegedly, for all of plaintiffs' symptoms, could not be distinguished from *S.* Tennessee originating elsewhere. Remember that before this outbreak started, there were on average about 51 cases of Tennessee salmonellosis reported to CDC each year. Strains with particular PFGE patterns may be relatively common in one location and rare in another. Where PFGE patterns are diverse, infections are derived from many different sources. Molecular subtyping of *Salmonella,* in other words, distinguishes between outbreak-associated infections and sporadic infections. Routine molecular subtyping by PFGE can thus improve detection of outbreaks; had it not been for PFGE, the very outbreak we are concerned with here would not have been detected or understood. When the number

of cases increases, subtyping provides a tool for determining whether one is dealing with one or multiple outbreaks.

Food Cultures

32. Culturing body fluids must be done at the time of illness. Culturing food need not be. In an appropriate case, we could examine any remaining peanut butter to see whether it contains *Salmonella*. After all, the plaintiffs' theory is that *Salmonella* organisms in their peanut butter were what made them ill. Although *Salmonella* will ordinarily not live for extended periods of time in body fluids, it will in peanut butter, as CDC has recognized. CDC, "Multistate outbreak of *Salmonella* Infections Associated with Peanut Butter and Peanut Butter-Containing Products--United States, 2008-2009," 58 (4) *MMWR* 85-90 (2009).

33. Where there is neither a contemporaneous culture of human body fluids nor a contemporaneous or later culture of peanut butter, we are generally left, at most, with a history and a set of physical findings consistent with acute gastrointestinal illness. Causes of such illnesses are common and rare, infectious and non-infectious, foodborne and not foodborne. Without a culture of body fluids, and without knowing the results of a peanut butter culture, one is relegated to reliance upon only history and physical findings. In such circumstances, one cannot say to a reasonable degree of scientific certainty that a plaintiff's disorder was caused by peanut butter-related salmonellosis. As Dr. Riley testified, to conclude that it was so caused requires speculation. The alternative to the methodology I describe above is, likewise, speculation.

34. All three of Plaintiff's medical experts emphasize that few organisms are needed to cause illness. But the same is true for a positive culture: few organisms are needed. Where an organism's numbers in a food product fall below those needed to be detected by culture, the likelihood that symptoms will develop after eating such a product is remote. Dr. Stratton also suggests that peanut butter testing is prone to sampling error, a statement offered with no description of the sampling techniques employed here. Sampling error is inherent in many medical and biological tests, but with appropriate preeautions that risk can be diminished. Moreover, while Dr. Stratton points out the possibility of sampling error, he makes no effort to quantify it. Unless the sampling error is substantial, it has no impact here. And assuming sampling error is possible is not the same as proving it is inevitable, that it occurred in any given case, or that the technique is valueless. Whatever the risk of sampling error, it pales by comparison with the risk of the alternative: making a rank guess about the wholesomeness of the peanut butter in a given jar. If all, or even most, ConAgra peanut butter had been contaminated, then given the product's sales figures one would reasonably expect far more cases, even using the most generous multiplier.

35. Plaintiffs' experts also argue that food testing is of doubtful reliability because the organism does not distribute itself freely within the product. They provide no basis for that conclusion and, again, sampling techniques can reduce any margin of error. Moreover, to the extent the organism is confined to pockets, it is all the more clear that exposure to ConAgra peanut butter need not mean exposure to tainted peanut butter. The best evidence available is that the vast majority of ConAgra peanut butter was not contaminated. It follows that the vast majority of it was incapable of

causing illness. The mere consumption of ConAgra peanut butter, without knowing whether it contained *Salmonella* Tennessee, simply does not meet the tests of causation outlined above. Specifically, a plaintiff showing he ate ConAgra peanut butter has not, without more, proved he has been exposed to the putative causative agent. *See* ¶8b, above.

Foods Vulnerable to *Salmonella* Contamination

36. Since on a clinical basis salmonellosis cannot be distinguished from other microbial infections, diagnosis hinges on culture of body fluids. But even where salmonellosis is established by culturing a plaintiff's body fluids, the inquiry is not at an end, for the source of the *Salmonella* must be identified. These cases focus on salmonellosis associated with consumption of contaminated peanut butter. In evaluating the claims, it is important to remember that virtually any food, not just peanut butter, may become contaminated with *Salmonella*. An individual consuming any such contaminated food may develop symptoms identical to those that plaintiffs complain of here. There are numerous examples. Even in the absence of recognized outbreaks, for example, eggs are important vehicles for *S. enterititidis* and *S. typhimurium*. *Salmonella* contamination of mozzarella cheese and shredded cheese products led to a multistate outbreak. *Salmonella* can contaminate meats, seafood, fruit, vegetables, starches, and even chocolate. Human or animal feces may contaminate the surfaces of fruits and vegetables and may not be removed by washing. Multistate salmonellosis outbreaks have been associated with consumption of tomatoes and cantaloupe. Recent foodborne outbreaks of salmonellosis associated with fresh produce include orange juice, cilantro, and raw seed sprouts. *Salmonella*

can survive for months under the dry conditions used for alfalfa seed storage, so consumption of raw alfalfa sprouts can cause salmonellosis. Recent *Salmonella* outbreaks linked to manufactured food products include ice cream, milk and milk products, infant formula, and goat cheese. In 2006 alone, confirmed cases were linked not only to the peanut butter plaintiffs blame here, but also to dairy products (ice cream, eggs benedict, baked eggs/casserole, eggs over-easy, mayonnaise, pizza, cheese, milkshakes, meringue pie, macaroni and cheese); meats (chicken, pork, beef, liver, came asada, turkey & gravy); fish (sushi, unspecified fish); vegetables (bean sprouts, potato puffs, pasta salad, potato salad, lettuce, boiled potatoes, rice, broccoli, specialty salads); fruits (tomatoes, watermelon, honeydew melon, plums, mixed fruit, fruit salad); beverages (ice tea), ethnic foods (burritos and other unspecified Mexican foods, various Korean side dishes, dosai); and miscellaneous food items (Caesar dressing, oil). *See*, CDC's *Summary Statistics for Foodborne Outbreaks, 2006*, Exh C. Many different forms of microbial contamination of any food that plaintiffs ate in the week prior to onset of their symptoms, or salmonellosis caused by any *Salmonella* other than *S.* Tennessee, would have created an acute gastrointestinal illness just like that caused by consumption of peanut butter contaminated with *S.* Tennessee. This does not mean proving causation is impossible. It does mean that without a culture, the alternatives are too numerous to permit anyone to say that compatible symptoms make it more likely than not that ConAgra peanut butter caused them. During the relevant time period tens of millions of jars of ConAgra peanut butter were available in millions of American households. Millions of people residing in those households and eating ConAgra peanut butter would have contracted some form of acute

gastrointestinal illness from sources other than ConAgra peanut butter during that time period. Without culture, it is impossible to determine the cause of their illness or to connect it to the peanut butter they consumed –we simply have too may possible alternative causes that cannot be eliminated without culture.

Other Microbial Causes of Foodborne Illness

37. Although *Salmonella* is a common bacterial contaminant of food, a great many other common bacteria, such as *Shigella, E. coli, Yersinia, Campylobacter, Campylobacter*-like organisms, *Vibrio* species, *Aeromonas, Plesiomonas, Staphylococcus aureus, Bacillus* species, *Legionella, Brucella, Francisella tularensis, Clostridium difficile* and its cytotoxin, *Mycobacterium*, and *Listeria*, among others, also frequently contaminate food and cause symptoms quite similar to those caused by salmonellosis. Anaerobes and *Streptococcus* and *Prototheca* species can do the same. History and physical findings will not distinguish among these possibilities. Culture can. Without attempting to present an encyclopedic discussion, I present here information pertinent to some of the more common microbial food pathogens.

38. *Escherichia coli* (*E. coli*) infections can spread through, among other things, contaminated food, contact with infected animals, contaminated swimming water, and from toddler to toddler at a child-care center. *E. coli* outbreaks have long been associated with animal products, but associations with produce have been increasing. *E. coli* has also been linked to consumption of lettuce, apple cider, and apple juice, for example. *E. coli* O157:H7, an especially virulent form of the organism, infects about 73,000 person per year in the US. Historically, investigations of *E. coli* O157:H7 infection outbreaks have linked illness to consumption of

contaminated ground beef, lettuce, sprouts, apple cider, raw milk, jerky made from deer meat, and water; to direct contact with farm animals; and from person-to-person transmission in day care settings. Particularly well-established transmission modes are consumption of pink (i.e., undercooked) hamburger, of privately slaughtered beef, and living on or visiting a farm. To satisfy the requirement (*see* ¶ 8d) that alternative explanations must be ruled out, one must evaluate all of these possibilities and more. Otherwise symptoms and peanut butter can too easily be mere coincidences.

39. *Shigella* is transmitted human-to-human or by human fecal contamination. Food can be a vector if it comes into contact with human feces. Person-to-person spread is much the more common mechanism, however. Shigellosis is an excellent example, in fact, of a cause of an acute gastrointestinal illness clinically identical to salmonellosis but usually unrelated to consumption of food.

40. Like the skin, the vagina, or the mouth, the bowel is not sterile. On the contrary, trillions of organisms live there, usually doing us no harm, and in fact helping us digest our food. When a doctor prescribes antibiotics to treat someone with infection, however, he often kills many normal bowel organisms in the process. *C. difficile* is of growing importance as a result of the widespread use of antibiotics, and the attendant suppression of normal bowel flora. It is especially common among those hospitalized but it is increasingly found in the community as well.

41. *Campylobacter* has become one of the most common causes of bacterial gastroenteritis in the industrialized world. The disorder it causes, campylobacteriosis, vies with shigellosis as *Salmonella*'s closest mimic. *Listeria,*

Vibrio, and *Yersinia,* though less widely distributed than *Campylobacter*, are also very common, and are also clinically similar to salmonellosis too.

42. The foregoing list is of bacteria. In foodborne illnesses, bacteria are certainly a common and important class of microbes, because they are responsible for many outbreaks. But they are not the only class of microbial pathogen that can behave in this fashion.

43. Viruses can cause similar illness. In fact, viral infections have long been the most important and frequent cause of foodborne illness in the U.S. In 2006, viruses were by far the most common cause of foodborne outbreaks; they caused a total of 337, resulting in 11,122 cases. These cases would be subject to the same multipliers I have previously discussed in order to estimate actual cases. For comparison, there were 223 bacterial outbreaks causing 5,336 cases nationwide. Outbreaks of gastroenteritis secondary to norovirus, alone responsible for 333 of these outbreaks, covered substantially the entire United States. Norovirus outbreaks have been associated with consumption of contaminated water, including municipal water supplies and recreational lake water, and consumption of contaminated food, such as oysters and salads. The causes of viral foodborne outbreaks that year also included hepatitis A, an organism extremely hard to control because it is spread so easily, especially by children, even before symptoms arise. Another viral pathogen that often causes acute gastrointestinal illness is rotavirus, particularly in children. Children's standards of hygiene, of course, are greatly inferior to adults', and they often congregate in large numbers in small spaces. They are exceedingly effective vectors. Astroviruses, adenoviruses, and other viruses are both highly contagious and very hard

to remove successfully from the environment. All can cause illness clinically indistinguishable from salmonellosis.

44. Just as bacteria differ from viruses, parasites differ from both. *Giardia lamblia* has become the commonest parasitic cause of diarrhea in the industrialized world. It is resistant to chlorine and can be found in all natural and some human water sources. *Entamoeba histolytica* can also cause symptoms similar to those seen in salmonellosis. Although the organism is more prevalent in third world countries than it is here, it can be found around the globe and international travelers are often exposed to it. Other confirmed parasitic etiologies of foodborne outbreaks in 2006 included *Crypotosporidium, Cyclospora,* and *Trichinella.*

45. *S. aureus* and *B. cereus* are bacteria that cause foodborne illness, but not via infection. Instead, under conditions of improper food storage, both produce toxins and can cause illness within a few hours of ingestion. Confirmed chemical etiologies of foodborne outbreaks in 2006 included histamine, MSG, mushroom toxins, herbal toxins, and cleaning agents, among others. While some of these primarily cause neurologic problems, others cause symptoms that can resemble acute gastrointestinal illness.

46. Although many microorganisms can cause acute GI illness, they are not its only cause. Many non-infectious disease states, particularly such GI problems as gastritis and peptic ulcer disease, and even non-GI problems such as certain heart, kidney, and even psychiatric disorders, can likewise cause symptoms similar to those of salmonellosis. A complete list would fill many pages; I shall focus on just a few. Consider peptic ulcer disease, by way of example. It typically causes abdominal

discomfort and nausea, sometimes accompanied by vomiting, diarrhea, or both. Ulcer disease can cause lesions in the stomach or in the intestine. Irritable bowel syndrome ("IBS") is a very common disorder. It is a gastrointestinal problem of unknown cause thought to be aggravated by stress. It is characterized by diarrhea or constipation or both, sometimes accompanied by nausea or abdominal discomfort. There is no cure. Typically, IBS waxes and wanes over time. Appendicitis causes abdominal pain, sometimes without nausea and vomiting. In one case I reviewed, the attending physician's initial impression was appendicitis; the patient, now a plaintiff, claims to have had salmonellosis. There are many other examples. Some, such as inflammatory bowel disease (ulcerative colitis; Crohn's disease), affect the gastrointestinal tract primarily. Others, such as psychiatric illnesses including anxiety and depression, cause similar symptoms but affect mainly organs outside the GI tract. In all of these disorders, one may experience nausea, vomiting, diarrhea, and/or abdominal discomfort.

Contamination of Foods by Organisms Other than *Salmonella*

47. Like *Salmonella*, other microorganisms may contaminate a wide range of foods. Apple juice has been implicated in outbreaks of cryptosporidiosis, salmonellosis, and *E. coli* O157:H7. Orange juice contamination has led to several outbreaks of viral gastroenteritis and salmonellosis. Lettuce and apple cider have been implicated in outbreaks of *E. coli* infections in recent years. Our increasingly international food supply brings us more choice but also more risk, as demonstrated by the widespread outbreaks of cyclosporiasis from imported raspberries and hepatitis A from imported strawberries. Produce items including raspberries, strawberries,

cantaloupe, lettuce, alfalfa sprouts, and tomatoes have been implicated as vehicles for multistate outbreaks of cyclosporiasis, *E. coli* O157:H7 infections, salmonellosis, shigellosis, and hepatitis A. Tomatoes and other fresh fruits and vegetables can support the growth of *Salmonella* and other bacterial pathogens such as *Shigella* and *E. coli* O157:H7. By no means is this an exhaustive list. Rather, it illustrates that, just as many organisms cause acute gastrointestinal illnesses, a great many foods, probably all, can be contaminated with such organisms. A plaintiff attempting on the basis of an undocumented claim to make out a case of peanut butter-related *S.* Tennessee salmonellosis is not looking for a needle in a haystack. He is looking for a needle in a 10-acre field of haystacks.

Mechanisms of Food Contamination Generally

48. At all points between production and consumption, virtually any food can become contaminated with virtually any microbial pathogen. The array of opportunities for contamination is one reason why determining specific causation in outbreaks of foodborne illness can be so challenging.

49. Demand for imported and domestic fresh fruits and vegetables has grown, in part because of public health efforts to prevent cardiovascular disease and cancer. The increasing importation of fresh produce items from developing countries, described by Dr. Schaffner among others, has increased the potential for foodborne outbreaks of shigellosis and "traveler's diarrhea" caused by enterotoxigenic *E. coli* that are endemic in those countries. Travel increases risk through multiple mechanisms, including the mode of transportation. Consumption of foods aboard commercial aircraft has been associated with shigellosis, for example. Commercial

aircraft lack refrigeration facilities, and the potential for contamination of cold foods during preparation is increased. Flight attendants frequently handle food, ice, and beverages, but the hand washing sinks on aircraft do not facilitate hand-washing because of the spring-loaded faucet design. In at least one such outbreak, food items aboard an aircraft were contaminated by one or more food handlers who acquired *Shigella sonnei* infection in the community.

50. Restaurants of all kinds, including some high-end establishments, can be a source of foodborne illness. Probably, most do not serve peanut butter as a menu item. In 2006, about 80% of Americans ate out at least once per week, and restaurants are the most commonly identified setting for foodborne outbreaks in the U.S. Eating outside the home has consistently been a risk factor for *Salmonella* infections. Over 50% of restaurants that prepare breakfast egg entrees pool raw shell eggs not intended for immediate service. Improper holding times and temperatures are associated with outbreaks caused by *Clostridium perfringens, Bacillus cereus, Staphylococcus aureus,* and *Salmonella*. *Salmonella* has been recovered from food contact areas such as cutting boards and grill grease traps and from areas that do not come into direct contact with foods, such as employee break rooms and water coolers. Outbreaks of *Salmonella* infections in restaurants are complex events involving multiple factors: 1) consumption of undercooked foods of animal origin ("FAO"); 2) uncooked FAO cross-contaminating ready-to-eat ("RTE") foods; 3) FAO contamination of the environment, leading to sporadic or persistent contamination of RTE foods over time; 4) infection of food workers through contact with FAO or with environments contaminated by FAO or by consumption of contaminated foods; 5) contamination of

the environment by infected food workers, causing contamination of RTE foods; and 6) contamination of RTE foods via preparation by infected food workers. Poor personal hygiene among staffers is associated with carriage of *Shigella* and *Salmonella*. A single bakery employee with diarrhea who prepared frosting for cakes caused sickness among guests at two wedding receptions, a corporate picnic, and a graduation party. Other problems commonly encountered in restaurants that lead to foodborne illnesses include contaminated equipment and food from unsafe sources. Sometimes outbreaks arise from unexpected sources. Patrons and public health officials often overlook parsley, for example, because it is used as a garnish accompanying or covering many food items. Parsley chopped, held at room temperature, and used as an ingredient of garnish for multiple dishes gave rise to several restaurant-associated outbreaks of shigellosis caused by a common strain of *Shigella sonnei*. Nor are bacterial pathogens the only threat. As many as 1 million restaurant workers per year may be infected with noroviruses. A person who is actively shedding virus can contaminate large quantities of food in a short time. None of this proves that any Plaintiff developed symptoms because he dined out. These examples illustrate, however, that a showing of specific causation requires far more than evidence of peanut butter consumption and the development of intestinal symptoms.

51. By no means are restaurants the only possible sources of food that can give rise to illness. Bakeries, cafeteria/dining rooms (e.g. worksite, hospital, school), child care facilities, coffee shops, concession stands at sporting events or concerts, fast-food restaurants, gas station or similar mini-marts, hotel room service, potluck

private events, ready-to-eat food served in supermarkets or department stores, sit-down restaurants, snack bars, street-vended foods (push cart, kiosk, etc.), taverns or bars, grocery stores, supermarkets, food warehouse stores, mini-marts, ethnic specialty markets, farmers' markets, fish or meat shops, and home delivery services (Meals on Wheels, e.g.) have all been sources. So have institutional foods such as those served in prisons, jails, hospitals, and nursing homes or long-term care facilities. Dr. Schaffner has written about cross-contamination of delicatessen ham by *Listeria* from cheese when the same knife was used to cut both.

52. Eating out is a risk factor, but foods prepared at home are not immune. Home-grown produce or any kind of game (venison, pheasant, etc.), can cause outbreaks too - and have. Baby formula bought as a liquid, baby formula bought as a powder, store-bought puréed baby food (e.g. Gerber's), and commercially bottled water have also been linked to outbreaks. Contamination of raw animal products can occur during slaughter and processing. *Listeria monocytogenes* can be associated with processed meats. The mere fact such meat is served at home does not prevent illness. Dr. Schaffner, in fact, has argued that home-cooked meals are actually a more common source of foodborne illness than meals consumed at restaurants.

Mechanisms of *Salmonella* Contamination

53. The array of mechanisms by which microbial pathogens can contaminate food is wide. *Salmonella* is no exception. Changes in food consumption and the rapid growth of international travel and trade have facilitated dissemination of new *Salmonella* serotypes associated with fresh fruits and vegetables. Poultry and dairy products are classic targets of the bacterium. Infection of egg-laying and broiler

poultry flocks with *Salmonella enteritidis* is particularly widespread. Infection localizes to the reproductive tissues of chickens and is then transmitted to the forming egg before shell deposition. In a famous case, cross-contamination of pasteurized ice cream premix occurred during transportation in tanker trailers that had previously hauled non-pasteurized liquid eggs containing *S. enteritidis.* This led to a nationwide outbreak of salmonellosis. Tomatoes are another common vehicle for salmonellosis. When field-grown tomatoes were dumped into a common water bath, contamination occurred in a packing shed. Tomatoes placed in water cooler than the tomato pulp will absorb water and *Salmonella* organisms into the core tissues through the stem scar. *Salmonella* can survive on the skin of tomatoes and multiply to high numbers on cut or sliced tomatoes held at room temperature. *Salmonella* inoculated onto a stem scar can be transferred into the tomato by a knife blade used to cut the tomato. Individual consumers may be limited in their ability to decontaminate fresh produce items.

54. Dr. Stratton writes that "Humans are infected with *Salmonella* almost solely by the ingestion of contaminated food or drink." Salmonellosis need not always be contracted by consuming tainted food, however. It can be contracted through drinking contaminated water. It can also be spread person-to-person, especially in institutional settings. Teachers and children at child care centers are a good example. Control of outbreaks in daycare centers may be difficult because of the need for frequent diaper changing and the higher rate and longer duration of convalescent carriage in preschoolers. Nosocomial transmission from patients to health care workers has been associated with handling soiled linen, non-compliance with barrier

precautions, and caring for fecally incontinent residents. Salmonellosis associated with exotic pets, especially reptiles, is a resurgent public health problem, accounting for 2-5% of cases. As many as 90% of reptiles may be carriers of *Salmonella*. Ubiquitous animals, including both those we attempt to exterminate and those we embrace, are common sources: rodents, dogs, and cats. In the article relied on by Plaintiffs' experts, cited above, Voetsch et al. wrote, "Control measures that target other sources of *Salmonella* – such as eggs, pet reptiles, alfalfa sprouts, and juice – also play a role in disease prevention." *Id.* at S132.

We see, then, that an undocumented case is probably not peanut butter-related. A wide array of factors having nothing to do with ConAgra or its product can create a clinical picture similar to that seen in salmonellosis, peanut butter-related or not. I turn next to the theory articulated by plaintiffs' experts: that by applying definitions developed for disease surveillance to an individual's lawsuit one can properly infer specific causation. As I discuss below, this conclusion is incorrect.

An Epidemiologically "Probable Case"

55. Dr. Stratton, Dr. Schaffner, and Dr. Riley all cite CDC literature to argue that a "probable case" means "a case that is clinically compatible with the disease and epidemiologically linked to a confirmed case." As Dr. Riley testified, however, the meaning of "probable" differs in different contexts. A case may be "probable" for purposes of epidemiologic investigation, with its emphasis upon acting rapidly to prevent spread of disease, or of reporting nationally notifiable diseases, and yet improbable from the standpoint of specific causation. CDC, in fact, requires suspected salmonellosis to be confirmed by culture. It frequently characterizes cases

as "suspect" or "probable" only to reclassify them as non-cases when a culture fails to confirm the clinical impression. A case preliminarily characterized as "probable" but not confirmed by culture and PFGE would fall into the non-case category. As used by CDC, a probable case actually means that gastroenteritis secondary to salmonellosis is more probable in a patient who ate tainted peanut butter than it is in one who did not. That degree of probability is by no means the same as "more probable than not." On the contrary, my calculations above determined that the probability that an undocumented case is peanut butter-related is remote.

"Clinically Compatible"

56. Dr. Stratton quotes the definition of "clinically compatible" as "a clinical syndrome generally compatible with the disease, as described in the clinical description," which in turn in this instance means "an illness of variable severity commonly manifested by diarrhea, abdominal pain, nausea, and sometimes vomiting." As noted, however, a great many conditions wholly unrelated to salmonellosis, never mind ConAgra peanut butter *Salmonella* Tennessee salmonellosis, fit this description. One could readily develop "diarrhea, abdominal pain, nausea, and sometimes vomiting" from any number of causes without ever having consumed the product at issue. Because of the public health objectives CDC serves, a disorder sufficiently "compatible" with a disease outbreak to justify reporting is not the same as a disorder that more likely than not was caused by consuming ConAgra's peanut butter. Moreover, although Dr. Stratton accurately quotes CDC's general description of "a *Salmonella* infection," he inexplicably omits reference to the definition of this particular outbreak set out at ¶ 23, *supra*: "Infection with *S.* Tennessee with a PFGE

pattern matching one of three outbreak patterns in a person residing in the United States with symptom onset on or after 8/1/06…" We are not concerned here with an academic discussion of the general nature of salmonellosis. Rather, we are called upon to determine whether a given plaintiff's acute GI illness was caused by eating ConAgra peanut butter, as alleged. The definition to use, then, is not one designed to provide general guidance to public health officials with a list of symptoms that resemble those of salmonellosis sufficiently to justify erring on the side of reporting. The definition to use is the one crafted by CDC after careful investigations of the very outbreak we are concerned with to describe accurately ConAgra peanut butter-related outbreak strain *S.* Tennessee salmonellosis.

Epidemiologic Linkage

57. All three Plaintiffs' experts say the meaning of "epidemiologically linked" is "a case in which a) the patient had been exposed to a point source of infection to which all confirmed case-patients were exposed and b) transmission of the agent by the usual modes of transmission is plausible." In his report Dr. Stratton says, "the confirmed case-patients were exposed to ConAgra's tainted peanut butter." Report at 8. The confirmed case patients were indeed so exposed. But as discussed above, consumption of ConAgra peanut butter and "exposure to tainted peanut butter" are not synonymous. The evidence is very much to the contrary. Properly understood, ConAgra peanut butter would be a "point source of infection" sufficient to meet the criteria in the definition only if all of its production were tainted. There is no evidence that such is the case. Such evidence as is available suggests that only a fraction, and indeed a very small fraction, of the total output was contaminated.

Hence, as Dr. Riley testified, ConAgra peanut butter cannot properly be classified as a "point source of infection." In fact, no one jar of peanut butter can be deemed to be a point source unless one can demonstrate by culture that *Salmonella* Tennessee can be isolated from it. Since the fraction of the company's output that was contaminated was no more than 2.28%, the likelihood that any given jar was tainted is on the order of 43.9:1 against. Consequently, consumption of ConAgra peanut butter is not tantamount to exposure to a point source of infection, nor is consumption of wholesome peanut butter a "plausible mode" of transmission. This reality may be easier to appreciate when the consequences of missing a diagnosis of peanut butter salmonellosis for the physician and for the epidemiologist are considered. For the former, the consequences are substantially nil; for the latter, the consequences are potentially serious. To say, as Dr. Stratton does, that it is "highly likely" that those developing symptoms within the incubation period after consuming peanut butter [Schaffner is more conservative, saying only "probably;" Riley says "more likely than not"] is to ignore the numerous other sources of *Salmonella;* the numerous bacteria other than *Salmonella* that can cause the same picture; the numerous viral and parasitic organisms that can do the same; the numerous toxins, foodborne and otherwise, that can as well; and the many clinical conditions that have nothing to do with either foods or toxins that can, likewise, clinically mimic the picture of an acute gastrointestinal illness. It also presumes that no food eaten by plaintiffs in the entire week before symptom onset could have been a vector for foodborne illness. With an average of 20 outbreaks reported weekly in the US, this is an unjustified leap of faith.

Flaws in Plaintiffs' Experts' Causation Analysis

58. Despite their academic positions, Plaintiffs' experts have taken a sort of "country doctor" approach to the cases. They point out that stool cultures are often not done; that when there is a food outbreak, there are typically many more cases than are actually documented in the literature; that one cannot rule out causation where a stool culture is negative because stool cultures are not perfectly accurate; that ideally an entire jar of peanut butter would be tested rather than just a portion of it; and that in a typical doctor's office, a patient coming in with a reasonable history for salmonellosis and reporting that he had just recently eaten recalled peanut butter might very well convince the doctor that at least for clinical purposes he can assume that the patient probably does have peanut butter-related disease. After all, these patients are rarely seriously ill, and gastroenteritis resolves promptly. Therefore, there is little or no reason in clinical practice to engage in a careful work up to achieve a scientifically valid conclusion. While much of this may be true, it does not justify speculation, bad science, or bad medicine as a means to reach a conclusion on causation.

59. Plaintiffs' experts have failed to address alternative causation in any respect. This is a striking omission. It is poor differential diagnosis. A conclusion that a patient has peanut butter-related salmonellosis on the bases of a history of 1) eating recalled peanut butter and 2) consistent symptoms is scientifically indefensible. The experts' reports refer to *Salmonella* in general as opposed to *Salmonella* Tennessee specifically. Salmonellosis secondary to infection with *Salmonella* Tennessee, of course, is a rare condition. But that observation does not begin to address the flaws in the reasoning offered by these experts. Consuming peanut butter confers no immunity

to any disease. Every person who consumed ConAgra's product remained vulnerable to infection with every one of the 2500+ pathovars of *Salmonella*, and to all other bacterial pathogens, including each of those named above as well as to others not described. Each such person remained susceptible to infection with any virus and any parasite to exactly the same extent he did before eating peanut butter. Each such person remained capable of getting sick from exposure to any one of the many toxins, pharmaceutical, chemical, food-related, and otherwise, that could have caused illness before ingestion. Each likewise remained liable to develop GI and non-GI diseases that could have created an array of symptoms very much like those associated with salmonellosis. Only if we pretend that somehow between August 2006 and spring 2007 every consumer of ConAgra peanut butter was somehow protected from all other infections, and indeed from all other diseases generally, we cannot, as have the plaintiffs' experts, ignore the thousand natural shocks that flesh is heir to.

60. Plaintiffs' experts also fail to appreciate the importance of the "more likely than not" test imposed by law. The legal standard is explicit and the burden is on the plaintiffs to meet it. These reports fall short of that. More likely than not means a plaintiff must show how the evidence clears the 51% hurdle. It does not. See calculations above. On the contrary, the chance that a case without objective evidence is a case caused by peanut butter is < 0.01%. Plaintiffs have not met their burden of showing how to get from 0.01% to 51%. The explanation is straight forward: without culture positivity such a feat is impossible.

61. Plaintiffs' experts have provided no explanation of whatever methodology they have employed. Valid methodologies exist; I presented the five

steps above. Each must be considered. From the reports of Plaintiffs' experts, it is not clear that, apart from general causation, that the other four steps were considered. It is one thing to say, as Dr. Riley does, that causation here is "more likely than not" or, as plaintiffs' other experts say, "probable" or "highly likely." It is another thing entirely to make that demonstration quantitatively. From a quantitative, scientific perspective, their "more likely than not" mantra is pure speculation. I conclude that an undocumented case cannot meet the requirements of causation.

The Epidemic Curve

62. An epidemic curve is a graph on which the number of new cases of a disease is plotted against an interval of time to describe a specific epidemic or outbreak. The epidemic curve provides information on pattern of spread, magnitude, time trends, and incubation periods, among other things. CDC constructs these curves by applying well-established epidemiologic principles to data obtained from the field. Dr. Stratton acknowledges that, pursuant to the CDC epidemic curve, the initial symptom onset date was July 29, 2006. He asserts without explanation that "other cases of illness caused by ConAgra's tainted PB occurred prior to that date." There may well be some modest variability around the start and end points of the epidemic curve, but given the extent of the CDC effort, the numbers would be very small. Plaintiffs' experts say that some cases arose after the recall. Some consumers may have eaten the product despite admonitions not too, but since little of it was contaminated, few could have become ill that way. The total number of cases is small; any fraction of the total is as well.

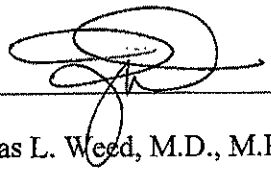
The Prognosis with Salmonellosis

64. The great majority of the estimated 1.4 million cases of salmonellosis per year typically lasts 4-7 days, and most individuals recover fully without treatment. Hence, the prognosis is generally excellent. In his report, Dr. Stratton suggests that "serious illness is common in infants, in the elderly, and in person with underlying diseases. Dehydration consequent to diarrhea may also lead to serious complications." In fact, however, serious complications in the U.S. are rare. Dehydration would occur only with a severe case that went unattended too long, and in any event dehydration is nearly always amenable to treatment. A small number of patients may experience reactive arthritis, but such claims frequently do not withstand scrutiny. In one case I reviewed, for example, plaintiff complained of painful joints after eating peanut butter, but her diagnosing physicians, evaluating those complaints, reported no objective findings such as swelling, redness, warmth, tenderness or diminished range of motion. On the contrary, the physical examination of the joints always seemed to be normal. As a result, one cannot in that case validly claim arthritis of any description, much less arthritis related to consuming tainted food. To take another example, the triad of Reiter's syndrome includes conjunctivitis, arthritis and urethritis. One plaintiff asserted she had Reiter's even though she had no evidence of conjunctivitis. To support a claim of urethritis in another case, a plaintiff pointed to her multiple urinary tract infections. Plaintiff also had longstanding multiple sclerosis, however, which would readily account for that history. So while Reiter's can complicate salmonellosis, it is not very common, and claims have to be analyzed closely before they are accepted. Moreover, just as the symptoms of salmonellosis can resemble

those of a multitude of other diseases, Reiter's has multiple causes as well, notably infections with bacteria other than *Salmonella*. *Shigella* in particular is closely associated with post-infectious Reiter's. So are infections with other organisms.

Conclusion

65. Claiming that undocumented cases were caused by eating peanut butter lacks a scientific methodologic foundation and is therefore speculation. I reserve the right to respond to any opinions offered by any other expert in these cases.



Douglas L. Weed, M.D., M.P.H., Ph.D.

8.4.09

Date

EXHIBIT 3-A

CURRICULUM VITAE

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Education:

1982 – Ph.D., Epidemiology, University of North Carolina

1980 – M.P.H., Epidemiology, University of North Carolina

1977 – M.D., The Ohio State University

1974 – B.Sc., Engineering, *summa cum laude*, The Ohio State University

Experience:

Dr. Weed is an independent scientific consultant. He is a physician-epidemiologist with 25 years of experience in epidemiological research and research training. Dr. Weed is an internationally recognized scholar and educator in causation, causal inference, and the ethics of epidemiology. He has extensive experience in the methods of general causation, cancer causation, systematic reviews, and weight-of-evidence methods. He holds academic appointments at the Johns Hopkins University School of Hygiene and Public Health and at the Georgetown University Kennedy Institute of Ethics. He co-chaired the National Academy of Sciences Committee on the *Daubert* decision and was a Visiting Scholar at the Federal Judicial Center (Washington, DC).

Dr. Weed is the founder of DLW Consulting Services, LLC. This scientific consulting company provides expertise in disease causation, the methods of causal inference, weight of evidence methods, epidemiological and clinical research methods, and the ethics of epidemiology and public health. DLW Consulting Services, LLC specializes in providing expert advice and guidance on problems at the interface of science, law, commerce, and public policy. Typical projects include expert testimony and consultation in toxic tort litigation, assessments of health risks from exposure to chemicals, metals, infectious agents, pharmaceuticals, and medical devices, as well as assessments of key methodological and ethical problems facing stakeholders. Examples of such problems include: scientific uncertainty, conflicts of interest, and methods used in legal and regulatory contexts to determine general and specific causation.

Employment:

2008- present Managing Member, DLW Consulting Services, LLC.

2007-2008	Vice President for Epidemiology and Biostatistics, The Weinberg Group, Washington DC
1990-2007	Chief, Office of Preventive Oncology, National Cancer Institute Director, Cancer Prevention Fellowship Program, Bethesda MD
1982-1989	Senior Staff Fellow, Biometry Branch, National Cancer Institute
1978-1982	Public Health Service Trainee, Department of Epidemiology, University of North Carolina, Chapel Hill, NC.
1978	Research Associate, Environmental Protection Agency, Chapel Hill, NC.
1977	Medical Intern, N. Carolina Memorial Hospital, Chapel Hill, NC.

Professional and Scientific Organizations:

American College of Epidemiology (Fellow)
International Epidemiological Association (Member)
Kennedy Institute of Ethics (Member)
Society for Epidemiologic Research (Member)

Elected Positions:

Board of Directors, American College of Epidemiology, 1998-2001
Executive Committee, Society for Epidemiologic Research, 1996-1999

Editorial Positions:

Associate Editor, Journal of the National Cancer Institute, 1994-present
Reviews Editor, Journal of the National Cancer Institute, 1995-present
Associate Editor, American Journal of Epidemiology, 1997-present
Editor-in-Chief, NCI Division of Cancer Prevention Newsletter, 1999-2002

Reviewer:

American Family Physician
American Journal of Epidemiology
American Journal of Industrial Medicine
American Journal of Preventive Medicine
American Journal of Public Health
Annals of Epidemiology
Cancer
Epidemiologic Reviews
Epidemiology

International Journal of Epidemiology
Journal of the American Medical Association
Journal of Clinical Epidemiology
Journal of Medical Decision-Making
Journal of the National Cancer Institute
Kennedy Institute of Ethics Journal
Preventive Medicine
Social Science and Medicine
Statistics in Medicine
Theoretical Medicine and Bioethics

Faculty Appointments:

Visiting Scholar, 2006
Federal Judicial Center
Washington, D.C.

Visiting Fellow, 2001
National Cancer Center
Tokyo, Japan

Visiting Professor (Oncology), 1999
McGill University and University of Montreal
Montreal, Quebec, Canada

Visiting Professor (Epidemiology), 1998
National School of Public Health
Madrid, Spain

Faculty Affiliate, 2001- present
Senior Research Fellow, 1995 – 2001
Visiting Fellow, 1994-5
Kennedy Institute of Ethics
Georgetown University, Washington, D.C.

Faculty member, 1994
Society for Epidemiologic Research
Student Workshop on Epidemiologic Methods, Miami, FL

Adjunct Associate Professor, 1994 - present
Department of Preventive Medicine and Biometrics
F. Edward Hebert School of Medicine
Uniformed Services University of the Health Sciences
Bethesda, MD

Associate Faculty, 1989 - present
Department of Epidemiology
School of Hygiene and Public Health
Johns Hopkins University, Baltimore, MD

Teaching Assistant and Lecturer (Epidemiology), 1979-80
University of North Carolina, Chapel Hill, NC

Honors and Awards:

Engineering Honor Scholar 1971-1974 (each year)
Phi Eta Sigma (freshman academic honorary) 1971
Alpha Epsilon Delta (pre-med academic honorary) 1973
Tau Beta Pi (engineering academic honorary) 1974
Phi Kappa Phi (general academic honorary) 1974
Alpha Omega Alpha (medicine academic honorary) 1977
Honors in Medicine (clinical) 1977
Honors in Obstetrics and Gynecology (clinical) 1977
On-the-Spot Cash Award (NCI): 1999, 2000
Sustained Superior Performance Cash Award (NCI): 1990-1999 (each year)
Distinguished Alumnus: Ohio State Univ. Preventive Medicine 1994
NIH Merit Award 1995
Commencement Speaker: USUHS M.P.H. Graduation 1996
Quality Step Increase (NCI) 1997, 2000
Keynote Speaker: III Congress of Chilean Society of Epidemiology 1997
Keynote Speaker: Spanish Epidemiologic Society 1998
Advances in Oncology Lecture: McGill University Cancer Center 1999
Samuel C. Harvey Lecture: American Association for Cancer Education 1999
Keynote Speaker: Korean Society for Preventive Medicine 1999
Grand Rounds: Ohio State University Cancer Center 1999
Keynote Speaker: Ethics and Research Integrity Day, University of Alberta, 2000
Keynote Speaker: EPA Conference on Environmental Statistics, 2001
J. Walter Juckett Memorial Lecture, Vermont Cancer Center, 2002
Distinguished Leadership Award, NCI Division of Cancer Prevention, 2002
NIH Merit Award, 2004
Keynote Speaker: Great Lakes Cancer Institute Symposium, 2005
Keynote Speaker: Turkish Society of Internal Medicine, 2005

Board and Committee Memberships

Member, Ohio State University School of Public Health Advisory Board
Columbus, Ohio, 2005 – present

Member, Commission on Forensic Science and Public Policy, American Judicature Society, 2005 -- present

Co-Chair, National Academy of Sciences Committee, 2005 - 2006

"Alternative Models to the *Daubert* Criteria"
Science, Technology, and Law Program, NAS

Chair, Prevention Working Group, 2001-2007
All-Ireland NCI Cancer Consortium
National Cancer Institute (NCI)

Chair, Scientific Education Committee, 1989- 2007
Division of Cancer Prevention, NCI

Chair, Ethics and Standards of Practice Committee, American College of Epidemiology, 1998-2001.

Member, NIH Committee on Continuing Medical Education (CME), 2000-2005

Cancer Advisory Panel, National Center for Alternative and Complementary Medicine, NIH, 1998-2002

World Health Organization Working Group on the Acceptability of Epidemiologic Evidence for Health Impact Assessment, 1999.

National Cancer Institute Cancer Training Advisory Committee, 1997-9.

Member, Advisory Committee for the National Center for Training in Cancer Prevention and Control, Centers for Disease Control and Prevention, 1995-7.

NIH Epidemiology and Clinical Trials Interest Group, 1985-2000.

NIH Committee on Generic Postdoctoral Research Training, 1994.

NCI Committee on Employee Mentoring, 1994.

Program Planning Committee, American Society of Preventive Oncology, 1991-1993.

American Cancer Society Task Force on Preventive Medicine Training, 1993.

NIH Planning Committee for the Alternative Medicine Technology Assessment Meetings, 1993.

ICCCR International Conference on Cancer Prevention. Bethesda, Maryland, February, 1991. See also: Monographs of the Journal of the National Cancer Institute. NIH Publication 91-3227, p.167, 1992.

American Society of Preventive Oncology Annual Meeting Symposium on Quality of Prevention Research. 1991.

Leader, Roundtable Discussion on Causal Inference. Society for Epidemiologic Research Annual Meeting, 1994.

Panel on Philosophy of Science in Epidemiology. Third Brazilian Congress of Epidemiology, Salvador, Bahia, Brazil, 1995.

Leader, Roundtable Discussion on Methods and Morals in Epidemiology. Society for Epidemiologic Research Annual Meeting, 1995.

NCI Roundtable Discussion on Clinical Trials Auditing, 1995.

Leader, Roundtable Discussion on Preventing Scientific Misconduct. Society for Epidemiologic Research Annual Meeting, 1996.

Education Review Committee, U.T. M.D. Anderson Cancer Center, Cancer Prevention and Education Program, 1996-1998.

Member, Ethics and Standards of Practice Committee, American College of Epidemiology, 1996-1998.

Research Interests:

Cancer epidemiology, prevention and control, causal and preventive inference, epidemiologic and public health methods (evidentiary methods, meta-analysis, systematic reviews, inferential methods, ethical decisionmaking methods), philosophy of public health, ethics of biomedical research, professional ethics, medical humanities, research training, science and the law.

Recent Lectures and Invited Seminars

"Biological Mechanism and Causal Inference" Institute of Medicine, Washington DC, June 2009.

"A Method for Individual Causation" University of North Carolina, Chapel Hill, NC, May 2008 and at the American Association of Law Schools Conference on Evidence, Cleveland, Ohio, June 2008.

"Cases and Causes" AstraZeneca Wilmington DE, November 2007, and Amgen Inc. Thousand Oaks, CA, March 2008.

"Why should epidemiology bridge the science/law "cultural chasm"? North American Epidemiology Congress plenary session, Seattle, Washington, June 2006.

"Rethinking Epidemiology" Imperial College (London), Division of Epidemiology, London, England, May 2006.

"Weight of Evidence and General Causation" Science for Judges Program, Brooklyn Law School, Brooklyn, NY, March 2006.

"Weight of Evidence: a Review of Concept and Methods." Society for Risk Analysis, Orlando, Florida, December 2005.

"The Future of Cancer Prevention" Keynote Address. Symposium, San Antonio Cancer Institute, San Antonio, Texas, November 2004; and Special Lecture at the 250th Anniversary of the Meath Hospital, Dublin, Ireland, October 2003.

"The End of Epidemiology" Columbia University, Department of Epidemiology, May 2004, University of New Mexico, May 2005, Imperial College (London) Department of Epidemiology and Public Health, December 2005.

"Cancer Prevention in the USA" Xi'an Cancer Hospital, Xi'an, China; CICAMS Cancer Hospital, Beijing, China, October 2004.

"Biologic plausibility and other challenges to the primary prevention of cancer." American College of Preventive Medicine, Washington DC, February 2005.

"The Future of Cancer Epidemiology." Michigan State University Department of Epidemiology, East Lansing, MI, April 2005, and the University of New Mexico, Department of Family and Community Medicine, Albuquerque, NM, May 2005.

Advisory Positions

American Health Foundation, 1998-1999.
Australian Cancer Society, 1999.
Health and Environmental Sciences Institute, 2004 – 2005.
International Life Sciences Institute, 2000 – 2003.
World Health Organization, 1999, 2001.
National Science Teachers Association, 2002-6.
Brooklyn Law School, 2003, 2006.

Dissertation and Thesis Committees

Vrije University, Brussels, Belgium (Guido Goelen, M.D., Ph.D), 1999-2001

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EXHIBIT 3-B

Exhibit B

Prior Testimony

Gary E. Charbonneau et al. Plaintiffs, v. Boehringer Ingelheim Pharmaceuticals Inc. et al. Defendants, in United States District Court, Court of Minnesota. Testimony on behalf of Defendants: Boehringer Ingelheim Pharmaceuticals Inc. and Pfizer Pharmaceuticals, Inc.

Walter E. Mairose, et al. Plaintiffs, v. The Dow Chemical Co. et al. in the District Court, Baltimore City, Maryland. Testimony on behalf of Defendants: Bridgestone Firestone National Tire LLC, Bristol Myers Squibb Co., P&G-Clairol, Inc., Conopco, Inc., Lornamead, Helene Curtis, Inc., The Dow Chemical Company, E.I. DuPont de Nemours and Co., Ethyl Corporation, Honeywell International Inc., Monsanto Co., Occidental Chemical Corporation, and Union Carbide Corporation.

EXHIBIT 3-C

Summary Statistics for Foodborne Outbreaks, 2006

Number of Foodborne Disease Outbreaks by Etiology

Confirmed Etiology	No. Outbreaks	No. Cases
Bacterial	223	5,336
Chemical	53	221
Parasitic	9	129
Viral	337	11,122
Suspect Etiology	**No. Outbreaks**	**No. Cases**
Bacterial	75	1,440
Chemical	11	39
Parasitic	3	18
Viral	165	2,841
Multiple Etiology	**No. Outbreaks**	**No. Cases**
Confirmed	1	96
Suspect	20	254
Confirmed and Suspected	1	32
All Etiology Status	**No. Outbreaks**	**No. Cases**
Total Confirmed Etiology	623	16,904
Total Suspect Etiology	275	4,592
Unknown Etiology	349	4,163
Grand Total	1247	25,659

Foodborne disease outbreaks are reported to the Centers for Disease Control and Prevention, Enteric Diseases Epidemiology Branch each year by state, local and territorial health departments. A foodborne disease outbreak (FBDO) is defined as the occurrence of two or more cases of a similar illness resulting from the ingestion of a common food. Reported FBDOs are listed by year and etiology type. Within each etiology category, outbreaks are sorted by etiology status (confirmed etiologies met the criteria specified in the guidelines for confirmation of foodborne-disease outbreak http://www.cdc.gov/foodborneoutbreaks/guide_fd.htm), the state in which the exposure took place and by month of first onset. Variables in the line listing include confirmed etiology, suspected etiology, state where the exposure took place, month of first onset, vehicle, and location of food consumption, hospitalizations and deaths. Vehicle(s) identified are not necessarily confirmed with statistical or epidemiological evidence; all vehicles identified by the reporting agency are listed in the line listing. Outbreaks in which an etiology was suspected (not confirmed) are also listed in each etiology category. Outbreaks with multiple etiologies or unknown etiologies are listed under the relevant categories of multiple etiology or unknown etiology.

Foodborne Outbreaks Due to Confirmed Bacterial Etiologies, 2006							
Confirmed Etiology	State*	Month	Ill	Hospitalizations	Deaths	Vehicle*	Location
Bacillus cereus	FL	12	10	0	0	spinach, cooked; crab, cooked; rice, white	Private home
Bacillus cereus	PA	7	20	0	0	pork, roasted	Private home
Bacillus cereus	RI	9	5	0	0	chicken, roasted	Private home
Brucella spp	KS	8	5	3	0	goat cheese/chevre, unpasteurized	Private home
Campylobacter fetus	PA	7	2	1	0		Unknown or undetermined
Campylobacter jejuni	CO	1	3	0	0	oysters, raw	
Campylobacter jejuni	HI	6	3	0	0		Private home
Campylobacter jejuni	IL	1	18	0	0	whole milk, unpasteurized	Private home
Campylobacter jejuni	NC	10	7				Restaurant or deli
Campylobacter jejuni	OR	7	12	0	0		Other
Campylobacter jejuni	PA	3	2	0	0		Unknown or undetermined
Campylobacter jejuni	PA	9	3	0	0		Unknown or undetermined
Campylobacter jejuni	PA	9	3	0	0		Unknown or undetermined
Campylobacter jejuni	PA	11	2	0	0		Unknown or undetermined
Campylobacter jejuni	VA	5	9	0	0	raw milk	Other
Campylobacter jejuni	VA	7	15	1	0	watermelon	Picnic;
Campylobacter jejuni	WA	5	10			ethnic style, unspecified	Restaurant or deli
Campylobacter jejuni	WI	5	58	2	0	homemade cheese, unpasteurized	Private home; Workplace, not cafeteria
Campylobacter jejuni	WI	12	23	0	0	ham, unspecified; beef, other	Banquet facility
Campylobacter unknown	CA	10	10	2	0	chicken, soy sauce; pork	
Campylobacter unknown	CO	8	67	0	0		Banquet facility; Wedding reception
Campylobacter unknown	CO	9	5	4	0	whole milk, unpasteurized	Other
Campylobacter unknown	NC	3	13				Unknown or undetermined
Campylobacter unknown	NY	2	2	0	0	whole milk, unpasteurized	Private home
Campylobacter unknown	OH	1	3	1	0	whole milk, unpasteurized	Private home
Campylobacter unknown	OH	8	13	2	0	sausage, bratwurst; chicken, grilled	Picnic;
Clostridium botulinum	AK	10	5	2	0	ethnic style, unspecified	Private home
Clostridium botulinum	CA	1	2	2	0	home canned carrots	Private home
Clostridium botulinum	CA	11	2	2	0	tofu, fermented	Private home
Clostridium botulinum	ML	9	4	4	0	carrot juice, pasteurized	Private home
Clostridium perfringens	AZ	2	249	0	0	burrito, turkey	Prison, jail
Clostridium perfringens	CA	1	59	0	0	miscellaneous	Prison, jail
Clostridium perfringens	CA	11	7	0	0	beef, meatball	Private home
Clostridium perfringens	CT	7	12	1	0	refried beans, unspecified	Private home
Clostridium perfringens	IL	3	8	0	0	burrito, beef	Workplace, not cafeteria
Clostridium perfringens	KS	12	22	0	0	turkey, roasted	Office setting; Workplace, not cafeteria
Clostridium perfringens	LA	9	16	1	0	pork, roasted; seafood pasta	Restaurant or deli; Banquet facility
Clostridium perfringens	LA	12	24	0	0	seafood pasta; roast beef, other; rice dishes	Banquet facility
Clostridium perfringens	MN	10	5	0	0		Restaurant or deli
Clostridium perfringens	NH	11	70	0	0	soup, beef-based; soup, chicken; soup, chicken noodle	Office setting
Clostridium perfringens	NH	12	98	0	0	steak, prime rib	Workplace cafeteria
Clostridium perfringens	NY	7	55	0	0	tortellini, cheese; seafood dish, unspecified; shrimp, fried	Banquet facility
Clostridium perfringens	NY	11	4	0	0	gravy, chicken; macaroni and cheese; rice, yellow	Private home

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Foodborne Outbreaks Due to Confirmed Bacterial Etiologies, 2006							
Confirmed Etiology	State*	Month	Ill	Hospitalizations	Deaths	Vehicle*	Location
Clostridium perfringens	NY	11	38	0	0	beef, meatball; sausage, Italian	School
Clostridium perfringens	NY	12	12	0	0	beef, chili	Fair, festival, temporary mobile service
Clostridium perfringens	OK	12	53	0	0	turkey, smoked	Other
E. coli., Enterohemorrhagic O121	UT	7	3			lettuce-based salads unspecified	Restaurant or deli; School
E. coli., Enterohemorrhagic O157:H7	CA	9	6	3	0	raw milk; raw colostrum	Private home
E. coli., Enterohemorrhagic O157:H7	CO	7	20	3	0		Banquet facility; Private home
E. coli., Enterohemorrhagic O157:H7	ID	9	3	1			
E. coli., Enterohemorrhagic O157:H7	ID	11	4	0	0	whole milk, unpasteurized	Private home
E. coli., Enterohemorrhagic O157:H7	IL	6	2	2	0		Restaurant or deli; Workplace, not cafeteria
E. coli., Enterohemorrhagic O157:H7	ME	7	5	2	0	macaroni	Private home
E. coli., Enterohemorrhagic O157:H7	ML	8	205	103	3	spinach	Private home
E. coli., Enterohemorrhagic O157:H7	ML	11	77	55	0	lettuce, unspecified	Restaurant or deli
E. coli., Enterohemorrhagic O157:H7	ML	11	65	16	0	lettuce, unspecified	Restaurant or deli
E. coli., Enterohemorrhagic O157:H7	MN	7	17	9	1	potato salad; ground beef, hamburger	Church, temple, etc
E. coli., Enterohemorrhagic O157:H7	MN	8	3	1	0		Restaurant or deli
E. coli., Enterohemorrhagic O157:H7	NC	10	5	3	0		Fair, festival, temporary mobile service
E. coli., Enterohemorrhagic O157:H7	NC	11	9				Restaurant or deli
E. coli., Enterohemorrhagic O157:H7	NM	8	5	4	0	spinach, unspecified	Private home
E. coli., Enterohemorrhagic O157:H7	NY	1	2	2	0	ground beef, unspecified	Restaurant or deli; Private home
E. coli., Enterohemorrhagic O157:H7	NY	3	6	4	0	ground beef, unspecified	Restaurant or deli; Private home
E. coli., Enterohemorrhagic O157:H7	NY	3	2	1	0	ground beef, hamburger	Private home
E. coli., Enterohemorrhagic O157:H7	NY	5	3	2	0	beef, meatball; green salad; steak, unspecified	Restaurant or deli; Private home
E. coli., Enterohemorrhagic O157:H7	NY	11	20	14	0	lettuce, prepackaged	Restaurant or deli; Workplace cafeteria; Private home
E. coli., Enterohemorrhagic O157:H7	OH	4	7	5	0	lamb, other	Private home
E. coli., Enterohemorrhagic O157:H7	OH	8	5	1	0		School
E. coli., Enterohemorrhagic O157:H7	OR	5	4	2	0		Restaurant or deli; Private home
E. coli., Enterohemorrhagic O157:H7	OR	11	3	1	0	vegetable-based salads unspecified	Restaurant or deli
E. coli., Enterohemorrhagic O157:H7	PA	6	2	1	0		Unknown or undetermined
E. coli., Enterohemorrhagic O157:H7	TN	7	9	5	0	steak, sirloin	Restaurant or deli
E. coli., Enterohemorrhagic O157:H7	TX	12	21	2	0		Hospital
E. coli., Enterohemorrhagic O157:H7	WA	9	2	1	0	whole milk, unpasteurized	Private home
E. coli., Enterohemorrhagic O26	MA	7	5	1	0	strawberries; blueberries	Other
Listeria monocytogenes	OR	2	2	1	1		
Listeria monocytogenes	OR	8	3	2	1	other cheese, pasteurized	Grocery store; Private home
Listeria unknown	MN	6	2	0	0	taco or nacho salad	Restaurant or deli
Salmonella	CA	7	6	0	0	ice cream, homemade	Picnic
Salmonella	FL	12	7	3		pork, roasted	Private home
Salmonella Agona	CA	8	40	0	0	chicken	Banquet facility
Salmonella Anatum	TN	7	55	7	0	pork, barbeque	Workplace cafeteria; Picnic; Private home
Salmonella Baildon	MI	6	21	2	0		Restaurant or deli
Salmonella Bareilly	NC	3	5				
Salmonella Bareilly	NC	8	25	0	0	ice tea	School

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Foodborne Outbreaks Due to Confirmed Bacterial Etiologies, 2006							
Confirmed Etiology	State*	Month	Ill	Hospitalizations	Deaths	Vehicle*	Location
Salmonella Berta	IL	10	5	2	0	pork, other	Private home
Salmonella Berta	ML	1	16	4	0	tomato, unspecified	Nursing home; Hospital
Salmonella Berta	PA	1	16	4	0	tomatoes	Restaurant or deli; Nursing home; Hospital
Salmonella Braenderup	OR	2	4	0	0	bean sprouts	Restaurant or deli
Salmonella Enteritidis	CA	6	16	0	0		Unknown or undetermined
Salmonella Enteritidis	CA	9	36	0	0	mutiple mexican foods	Restaurant or deli; School
Salmonella Enteritidis	CA	12	19	3	0	stuffed potato puffs	Restaurant or deli; Banquet facility
Salmonella Enteritidis	CO	8	12	0	0		Other
Salmonella Enteritidis	CT	11	7				Unknown or undetermined
Salmonella Enteritidis	ID	7	16	3	0		Restaurant or deli
Salmonella Enteritidis	IL	5	11	3	0		Restaurant or deli
Salmonella Enteritidis	MD	4	4	2	0		Other
Salmonella Enteritidis	MD	7	7	0	0		Restaurant or deli
Salmonella Enteritidis	ME	11	21	0	0		
Salmonella Enteritidis	MN	10	4	0	0		Restaurant or deli
Salmonella Enteritidis	NC	1	9	0	0	ground beef, other	Workplace, not cafeteria
Salmonella Enteritidis	NC	2	9	2	0	eggs benedict	Restaurant or deli
Salmonella Enteritidis	NC	10	42	13	0		Banquet facility
Salmonella Enteritidis	NJ	3	4	0	0	caesar dressing	Restaurant or deli
Salmonella Enteritidis	NY	5	9	0	0		Restaurant or deli
Salmonella Enteritidis	NY	12	4	4	0		Private home
Salmonella Enteritidis	OH	1	113	23	0	oil, unspecified; liver, chicken	Restaurant or deli
Salmonella Enteritidis	OR	5	9	0	0	carne asada	Restaurant or deli; Private home
Salmonella Enteritidis	PA	1	4	3	0		Restaurant or deli
Salmonella Enteritidis	PA	2	2	1	0		Unknown or undetermined
Salmonella Enteritidis	PA	4	2	2	0		Banquet facility
Salmonella Enteritidis	PA	12	10	2	0	egg baked/casserole	Private home
Salmonella Enteritidis	SC	1	42	1	0		Prison, jail
Salmonella Enteritidis	VA	12	7	0	0		Restaurant or deli
Salmonella Enteritidis	VT	8	10	2	1		Private home
Salmonella Group B	CA	3	2	0	0		Restaurant or deli; Office setting
Salmonella Group B	NY	8	5	2	0		Private home
Salmonella Hadar	TN	1	9	1	0		Other
Salmonella Heidelberg	AZ	11	13	5	0	eggs, over-easy	Restaurant or deli; Private home
Salmonella Heidelberg	CA	3	3	1	0	burrito, unspecified	Restaurant or deli
Salmonella Heidelberg	CA	4	22	5	0	mayonnaise made with raw eggs	Private home
Salmonella Heidelberg	CA	7	5	1	0	milkshake	Other
Salmonella Heidelberg	CO	5	22	6	0	chicken, teriyaki	Restaurant or deli
Salmonella Heidelberg	KS	4	13	6	0	pie, merengue	Restaurant or deli
Salmonella Heidelberg	MS	3	25	12	0	macaroni and cheese	Office setting; Private home; Workplace, not cafeteria
Salmonella Heidelberg	NJ	6	4	1	0		Other
Salmonella Heidelberg	PA	6	47	1	0		Camp
Salmonella I 4,[5],12:i:-	AR	1	14	4	0		Restaurant or deli
Salmonella I 4,[5],12:i:-	IA	9	4	3	0	pasta salad; potato salad	Wedding reception;

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Foodborne Outbreaks Due to Confirmed Bacterial Etiologies, 2006							
Confirmed Etiology	State*	Month	Ill	Hospitalizations	Deaths	Vehicle*	Location
Salmonella I 4,[5],12:i:-	IA	12	20	2	0		Banquet facility
Salmonella I 4,[5],12:i:-	OR	4	7	0	0	chicken, baked	Office setting; Private home
Salmonella Java	CO	6	7	2	0	cheese, unspecified	Restaurant or deli
Salmonella Java	NH	3	3	0	0		Other
Salmonella Javiana	NC	8	4				Office setting
Salmonella Javiana	NY	8	8	3	0		Restaurant or deli; Private home; Hospital
Salmonella Javiana	TN	11	16	7	0	iceberg lettuce, unspecified	Restaurant or deli
Salmonella Javiana	VA	11	43	8	0		Unknown or undetermined
Salmonella Miami	MN	8	3	2	0		Restaurant or deli
Salmonella Montevideo	GA	8	72	19	0	sandwich, roast beef	Restaurant or deli; Private home; Workplace, not cafeteria
Salmonella Montevideo	ME	5	3	0	0		
Salmonella Montevideo	VT	7	3			meats	Camp
Salmonella Muenster	PA	8	60	2	0	pork barbeque	Workplace, not cafeteria
Salmonella Newport	CA	5	24			multiple foods	Other
Salmonella Newport	CA	8	27	2	0	potato, boiled	Banquet facility
Salmonella Newport	CA	8	5	1	0		Private home
Salmonella Newport	IL	8	9	3	0		Restaurant or deli
Salmonella Newport	ML	6	115	6	0	tomato, unspecified	Restaurant or deli
Salmonella Newport	MN	8	18	1	0	chicken, unspecified	Restaurant or deli
Salmonella Newport	NY	8	20	2	0	watermelon	Restaurant or deli
Salmonella Newport	NY	8	12	3	0	honeydew melon; plum, unspecified; pizza, unspecified; cheese, unspecified	Other; Restaurant or deli; Private home
Salmonella Newport	TX	11	77	2	0	turkey and gravy ; tea, unspecified	School
Salmonella Oranienburg	AZ	9	59		0	hard ice tea	Restaurant or deli
Salmonella Oranienburg	CA	3	4	0	0	korean side dishes (various)	Restaurant or deli
Salmonella Oranienburg	ME	7	2	1	0	mixed fruit	Workplace cafeteria; Nursing home; Hospital
Salmonella Oranienburg	ML	6	41	7	0	fruit salad	Grocery store; Nursing home; Hospital
Salmonella Paratyphi B	MN	6	9	2	0		Restaurant or deli; Prison, jail
Salmonella Potsdam	CA	8	19	1	0	multiple foods	Restaurant or deli
Salmonella Saintpaul	NY	6	12	5	0		Restaurant or deli; Grocery store; Private home
Salmonella Saintpaul	NY	7	3	0	0	deli meat, sliced turkey	Private home
Salmonella Schwarzengrund	PA	1	6	0	0		Unknown or undetermined
Salmonella Stanley	PA	8	12	4	0		Unknown or undetermined
Salmonella Tallahassee	TN	5	5	1	0		Restaurant or deli
Salmonella Tennessee	ML	8	381	89	0	peanut butter	Private home
Salmonella Tennessee	SD	5	7	0	0	peanut butter	
Salmonella Tennessee	VT	8	7	0	0	nuts	
Salmonella Thompson	OH	8	9	1	0	rice, broccoli and cheese	Picnic; Private home
Salmonella Thompson	SC	10	100	3	0	peanuts	Fair, festival, temporary mobile service
Salmonella Typhimurium	AR	2	161	7	0	chicken, teriyaki; sushi, unspecified	Restaurant or deli; Private home
Salmonella Typhimurium	CA	6	39	0	0	chicken skewers	Wedding reception;

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Foodborne Outbreaks Due to Confirmed Bacterial Etiologies, 2006							
Confirmed Etiology	State*	Month	Ill	Hospitalizations	Deaths	Vehicle*	Location
Salmonella Typhimurium	CA	6	5	0	0		Restaurant or deli
Salmonella Typhimurium	CO	3	20	0	0		Day care center
Salmonella Typhimurium	GA	7	3	1	0	dosai	Restaurant or deli; Private home
Salmonella Typhimurium	IN	5	199	39	0	deli meat, unspecified	Private home
Salmonella Typhimurium	MA	7	37	6	0		Other
Salmonella Typhimurium	MD	6	18	4	0	lettuce, unspecified; tomato, unspecified	Restaurant or deli; Private home
Salmonella Typhimurium	ME	9	8	1	0	tomato (see fruit)	
Salmonella Typhimurium	MN	4	3	2	0	stuffed chicken	Private home
Salmonella Typhimurium	MN	6	4	1	0		Restaurant or deli
Salmonella Typhimurium	MN	6	50	6	0	soup, other vegetable-based	Restaurant or deli
Salmonella Typhimurium	NY	6	9	4	0		Other; Restaurant or deli; Private home
Salmonella Typhimurium	NY	7	17	6	0		Restaurant or deli; Picnic; Fair, festival, temporary mobile service; Private home;
Salmonella Typhimurium	OH	4	6			chicken dishes	Private home
Salmonella Typhimurium	OR	8	5	2	0		
Salmonella Typhimurium	PA	4	2	2	0		Unknown or undetermined
Salmonella Typhimurium	PA	8	2	0	0		Unknown or undetermined
Salmonella Typhimurium	PA	8	4	0	0		Private home
Salmonella Typhimurium	UT	2	3				Restaurant or deli
Salmonella Typhimurium	UT	12	7		0	speciality salads unspecified	Restaurant or deli; Banquet facility
Salmonella Typhimurium	VA	2	40	1	0	turkey, unspecified	Prison, jail
Salmonella Typhimurium var Copenhagen	CA	9	3	0	0	chicken, unspecified	Restaurant or deli
Salmonella Typhimurium var Copenhagen	CO	5	7	0	0	chicken; watermelon	Restaurant or deli
Salmonella Typhimurium var Copenhagen	KS	11	12	4	0		Church, temple, etc
Salmonella Uganda	MA	12	29	0	0		Restaurant or deli
Salmonella Weltevreden	HI	11	9				
Shigella flexneri	AZ	5	9	2	0		Restaurant or deli
Shigella sonnei	AZ	9	29	7	0	beef, picadilla	Workplace, not cafeteria
Shigella sonnei	CA	1	3	0	0		Unknown or undetermined
Shigella sonnei	CA	1	8	1	0	unspecified fish	Restaurant or deli
Shigella sonnei	CA	8	73				Restaurant or deli
Shigella sonnei	CA	9	9	0	0	salad, unspecified	Restaurant or deli
Shigella sonnei	CA	9	11	2	0	beans, unspecified	Restaurant or deli
Shigella sonnei	MN	9	6	0	0		Restaurant or deli
Shigella sonnei	OR	1	35	7	0	lettuce-based salads unspecified	Restaurant or deli
Staphylococcus aureus	CA	2	38	0	0	pancit	Office setting; Private home
Staphylococcus aureus	CA	5	22	0	0	chicken salad	Workplace, not cafeteria
Staphylococcus aureus	HI	5	46	0	0	pork, roasted	Fair, festival, temporary mobile service
Staphylococcus aureus	IL	9	23	3	0	pork, other	Private home
Staphylococcus aureus	LA	9	35	2	0	mixed meats, unspecified; ground beef, other	Banquet facility
Staphylococcus aureus	MI	5	36	0	0	powdered milk	Prison, jail

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Foodborne Outbreaks Due to Confirmed Bacterial Etiologies, 2006

Confirmed Etiology	State*	Month	Ill	Hospitalizations	Deaths	Vehicle*	Location
Staphylococcus aureus	MN	9	13	0	0	shrimp	Private home
Staphylococcus aureus	OK	6	11	1	0	beef, barbeque	Restaurant or deli
Staphylococcus aureus	PA	8	17	0	0	fish, tilapia; chicken, fried	
Staphylococcus aureus	TN	9	3	0	0		Restaurant or deli
Staphylococcus aureus	VA	4	36	0	0	beef, unspecified; potato salad; rice	Church, temple, etc
Staphylococcus aureus	VA	9	100	2	0	chicken, barbeque; ham, biscuit; potato salad	Wedding reception;
Vibrio parahaemolyticus	OR	7	14	0	0	oysters, raw	Restaurant or deli
Vibrio parahaemolyticus	CA	6	27	0	0	oysters, raw	Restaurant or deli; Picnic; Private home
Vibrio parahaemolyticus	CA	7	10	1	0	oysters, raw	Picnic;
Vibrio parahaemolyticus	ML	5	177	2	0	oysters	Restaurant or deli; Banquet facility; Picnic; Grocery store; Private home
Vibrio parahaemolyticus	NY	5	80	0	0	crab, unspecified	Restaurant or deli
Vibrio parahaemolyticus	NY	7	4	0	0	clams, raw	Restaurant or deli
Vibrio parahaemolyticus	NY	8	2	0	0	clams, raw	Private home
Vibrio parahaemolyticus	WA	5	113	2	0	oysters, raw	Restaurant or deli; Banquet facility; Picnic; Grocery store; Private home

Foodborne Outbreaks Due to Suspect Bacterial Etiologies, 2006

Suspect Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Bacillus cereus	CA	11	5	0	0	pork fried rice	Private home
Bacillus cereus	FL	4	2			buffet	Restaurant or deli
Bacillus cereus	FL	6	2			other grains	Restaurant or deli
Bacillus cereus	FL	6	2			lo mein, unspecified	Private home
Bacillus cereus	FL	8	2			pancakes	Restaurant or deli
Bacillus cereus	FL	8	3			steak, prime rib	Restaurant or deli
Bacillus cereus	FL	11	4	0	0	rice, spanish	Restaurant or deli
Bacillus cereus	FL	12	2			taco, beef; pizza, meat and vegetable	Private home
Bacillus cereus	TN	11	12	0	0		Restaurant or deli
Bacillus cereus	WA	10	3	0	0		Restaurant or deli
Bacillus other	GA	3	15	0	0	tortilla espanola	School
Campylobacter unknown	CA	3	3	0	0		Unknown or undetermined
Campylobacter unknown	CA	5	11	0	0		Church, temple, etc
Campylobacter unknown	CO	1	4	0	0		Private home
Clostridium perfringens	AL	3	741			chicken, baked	Prison, jail
Clostridium perfringens	CA	1	34	0	0	chili colorado	Other
Clostridium perfringens	CA	9	13	0	0		Church, temple, etc
Clostridium perfringens	CA	10	81	0	0	carnitas, pork	Banquet facility
Clostridium perfringens	FL	3	3			chile relleno, unspecified	Restaurant or deli
Clostridium perfringens	FL	4	10	0	0		Church, temple, etc
Clostridium perfringens	FL	7	3			fajita, chicken; taco, chicken	Private home
Clostridium perfringens	GA	3	4	0	0	chicken, honey mustard	Restaurant or deli
Clostridium perfringens	GA	12	86	0	0	turkey, roasted; turkey and gravy	Workplace, not cafeteria
Clostridium perfringens	HI	3	33	0	0	roast beef, other	Banquet facility
Clostridium perfringens	KS	2	4	0	0		Restaurant or deli
Clostridium perfringens	MN	1	76	0	0	turkey, unspecified; gravy, unspecified	Prison, jail
Clostridium perfringens	MN	4	5	0	0	refried beans, unspecified	Restaurant or deli
Clostridium perfringens	MN	8	6	0	0	chicken, other; refried beans, unspecified	Restaurant or deli

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Foodborne Outbreaks Due to Suspect Bacterial Etiologies, 2006							
Suspect Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Clostridium perfringens	MN	8	5	0	0		Restaurant or deli
Clostridium perfringens	NY	2	8	0	0	refried beans, unspecified; rice, unspecified	
Clostridium perfringens	OH	6	4			meat sauce	Private home
Clostridium perfringens	WA	1	32	0	0	beef, other	School
E. coli., Enterotoxigenic Unspecified	CA	6	2	0	0		Restaurant or deli
Listeria monocytogenes	OH	10	3			ham, unspecified	Private home
Other bacterial	CA	1	6	0	0	chicken, other	Private home
Other bacterial	CA	1	4	0	0	burrito, unspecified	Restaurant or deli
Other bacterial	CA	1	4	0	0	fried foods	Office setting
Other bacterial	CA	1	4	0	0		Private home
Other bacterial	CA	1	6	0	0		Workplace, not cafeteria
Other bacterial	CA	2	6				Restaurant or deli
Other bacterial	CA	3	2				
Other bacterial	CA	3	6	0	0	taco meat	Restaurant or deli
Other bacterial	CA	4	4	0	0		Private home
Other bacterial	CA	4	8	0	0		School
Other bacterial	CA	4	14	0	0		Office setting; Fair, festival, temporary mobile service; Workplace, not cafeteria
Other bacterial	CA	5	6	0	0		Office setting
Other bacterial	CA	9	6	0	0	milk/cream	School
Other bacterial	CA	10	3	0	0	unknown seafood	Restaurant or deli
Other bacterial	IA	5	16	0	0	pork, roasted	Other
Other bacterial	WA	10	6	0	0		Restaurant or deli
Salmonella Agona	KS	11	9	1	0		Restaurant or deli
Salmonella Agona	OH	12	2	1	0		Private home
Salmonella Enteritidis	NY	6	7	0	0		Private home
Salmonella Enteritidis	WY	6	6	0	0		Restaurant or deli
Salmonella unknown	CA	8	20		0		Office setting
Shigella sonnei	CA	1	2	1	0		Unknown or undetermined
Staphylococcus aureus	CA	10	2	0	0		Private home
Staphylococcus aureus	CO	1	4	0	0	sandwich, other specialty	Office setting
Staphylococcus aureus	FL	1	2			chicken w/ wine sauce	Restaurant or deli
Staphylococcus aureus	FL	7	2			ground beef, other	Private home
Staphylococcus aureus	FL	8	3			ground beef, hamburger	Private home
Staphylococcus aureus	FL	11	2	1	0	ribs, pork	Restaurant or deli
Staphylococcus aureus	FL	12	2			fish, codfish	Restaurant or deli
Staphylococcus aureus	GA	1	2	0	0	seafood pasta	Restaurant or deli
Staphylococcus aureus	GA	4	4	0	0	shrimp baugette	Restaurant or deli
Staphylococcus aureus	GA	5	4	0	0	pork, barbeque	Restaurant or deli
Staphylococcus aureus	MD	8	9	0	0		Other; Prison, jail
Staphylococcus aureus	NY	6	2	0	0	chicken, teriyaki	Restaurant or deli
Staphylococcus unknown	FL	1	2			sandwich, deli	Private home
Staphylococcus unknown	FL	2	2			fish, dolphin	Restaurant or deli
Staphylococcus unknown	FL	6	2			sandwich, chicken	Restaurant or deli
Staphylococcus unknown	FL	7	2			milkshake	Restaurant or deli

Foodborne Outbreaks Due to Suspect Bacterial Etiologies, 2006

Suspect Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Staphylococcus unknown	FL	11	2			sandwich, chicken	Private home
Vibrio parahaemolyticus	NY	5	19	1	0	octopus, unspecified; scallops, unspecified; lobster, fried	Restaurant or deli
Vibrio parahaemolyticus	NY	7	3	0	0	seafood, unspecified	Restaurant or deli

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Foodborne Outbreaks Due to Confirmed Viral Etiologies, 2006							
Confirmed Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Hepatitis A	AZ	1	13	4	0		Restaurant or deli
Hepatitis A	NC	7	14	1	0	spring water	Private home
Hepatitis A	OR	4	7	1	0		Restaurant or deli
Norovirus	AZ	4	12	1	0		Wedding reception;
Norovirus	AZ	9	6	0	0		Restaurant or deli
Norovirus	CA	1	23	0	0	alcohol, unspecified	Wedding reception;
Norovirus	CA	1	12	0	0	salad, unspecified	Office setting
Norovirus	CA	2	15	0	0		Restaurant or deli
Norovirus	CA	2	3				Restaurant or deli
Norovirus	CA	2	6	0	0		Restaurant or deli
Norovirus	CA	2	49	0	0	salad, unspecified	Office setting
Norovirus	CA	3	23	0	0	multiple foods	Other
Norovirus	CA	3	18	0	0	pork, other	Banquet facility; Wedding reception
Norovirus	CA	4	3	0	0	lettuce, unspecified	Restaurant or deli
Norovirus	CA	4	18	0	0	multiple foods	Banquet facility
Norovirus	CA	4	56	0	0	multiple foods	Banquet facility
Norovirus	CA	4	22	0	0		Banquet facility
Norovirus	CA	4	21			beans, unspecified	
Norovirus	CA	5	19	1	0		Restaurant or deli
Norovirus	CA	5	27	0	0	sandwich, turkey	Restaurant or deli; Picnic; Private home
Norovirus	CA	6	21	0	0	chicken dishes, unspecified; chips, tortilla	Restaurant or deli
Norovirus	CA	7	32	0	0	mixed fruit	Office setting
Norovirus	CA	7	14	0	0	watermelon	Other
Norovirus	CA	8	9	1	0	caesar salad; crab cakes	Private home
Norovirus	CA	8	36	1	0	caesar salad; salad, other; bread, unspecified	Wedding reception;
Norovirus	CA	8	10			cookies, unspecified; Lemon bars	Office setting
Norovirus	CA	8	17	1	0		Banquet facility
Norovirus	CA	8	12	0	0		School
Norovirus	CA	9	18	0	0	salad, unspecified; ranch dressing	Office setting
Norovirus	CA	9	26	0	0	cobb salad; cobb dressing	Other
Norovirus	CA	10	24	2	0	multiple foods	Banquet facility
Norovirus	CA	11	11	0	0	cake, cheese	Other
Norovirus	CA	11	19	0	0		Restaurant or deli
Norovirus	CA	11	8	0	0	salad, unspecified	Restaurant or deli
Norovirus	CA	11	113	2	0		Banquet facility
Norovirus	CA	12	23	0	0		Restaurant or deli; Banquet facility
Norovirus	CA	12	27	0	0		Restaurant or deli
Norovirus	CA	12	11	0	0		Restaurant or deli
Norovirus	CA	12	15	0	0		Restaurant or deli
Norovirus	CO	3	18	1	0		Restaurant or deli
Norovirus	CO	4	1200	1	0		
Norovirus	CO	4	6	0	0		Workplace, not cafeteria
Norovirus	CO	4	20	0	0	lettuce-based salads unspecified	Workplace, not cafeteria
Norovirus	CO	5	19	0	0		Restaurant or deli
Norovirus	CO	5	7	0	0		Restaurant or deli
Norovirus	CO	5	26	0	0	ravioli, unspecified; lettuce-based salads unspecified	Restaurant or deli; School
Norovirus	CO	5	11	0	0	shrimp cocktail	Restaurant or deli

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Foodborne Outbreaks Due to Confirmed Viral Etiologies, 2006							
Confirmed Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Norovirus	CO	5	18	0	0	tortilla, unspecified; cheese, unspecified; iceberg lettuce, unspecified	Restaurant or deli; Workplace, not cafeteria
Norovirus	CO	5	50	0	0	green salad	Prison, jail
Norovirus	CO	6	9	0	0		Private home
Norovirus	CO	10	36	0	0		Other; Restaurant or deli; Banquet facility
Norovirus	CO	11	14	1	0		Wedding reception;
Norovirus	CO	11	12	0	0		Restaurant or deli; Private home
Norovirus	CO	12	56	1	0		Banquet facility
Norovirus	CT	1	59	0	0	ice	Banquet facility
Norovirus	CT	4	3	0	0		Restaurant or deli
Norovirus	CT	4	8	0	0	sandwich, chicken	Private home
Norovirus	CT	6	34	0	0	pizza, vegetable	Banquet facility; Wedding reception
Norovirus	CT	8	11	0	0	deli meat, unspecified	Private home
Norovirus	CT	10	12	0	0		Office setting
Norovirus	CT	12	9	0	0		Restaurant or deli
Norovirus	CT	12	11	0	0	swiss cheese, pasteurized	Private home
Norovirus	CT	12	7	0	0	coffee	Restaurant or deli
Norovirus	FL	3	8	0	0		Restaurant or deli
Norovirus	FL	4	228				School
Norovirus	FL	5	61				Banquet facility
Norovirus	FL	9	18			house salad	Restaurant or deli
Norovirus	FL	11	21				Other
Norovirus	FL	12	24	2	0	ice	Restaurant or deli
Norovirus	FL	12	42				School
Norovirus	GA	1	17	0	0		Restaurant or deli; School
Norovirus	GA	2	17	0	0	sour cream ; cheddar cheese, unspecified; chips, tortilla	Workplace, not cafeteria
Norovirus	GA	5	18	0	0		School
Norovirus	GA	5	47	0	0		School
Norovirus	HI	5	17	0	0		Restaurant or deli
Norovirus	HI	7	54	0	0		Camp
Norovirus	IA	12	32	1	0	ham, other	Restaurant or deli
Norovirus	ID	4	21	0	0	enchilada, chicken	Banquet facility
Norovirus	ID	5	24	0	0	lettuce, unspecified	Restaurant or deli
Norovirus	ID	9	10			ice tea; lettuce -based salads	Restaurant or deli
Norovirus	ID	11	16			french fries; sandwich, beef; sandwich, turkey	Restaurant or deli
Norovirus	ID	12	8	0	0	lettuce; egg rolls; spring rolls, unspecified	Restaurant or deli
Norovirus	IL	1	418	2	0		Restaurant or deli
Norovirus	IL	2	28	0	0	tap water; green salad; mozarella cheese, unspecified	Banquet facility
Norovirus	IL	3	17	0	0		Private home
Norovirus	IL	4	11	0	0		Restaurant or deli
Norovirus	IL	4	8	0	0		Restaurant or deli
Norovirus	IL	5	18	0	0		Private home
Norovirus	IL	5	14	0	0		Private home
Norovirus	IL	5	4	0	0		Restaurant or deli
Norovirus	IL	8	5	1	0		Restaurant or deli
Norovirus	IL	10	23				Other; Restaurant or deli

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Foodborne Outbreaks Due to Confirmed Viral Etiologies, 2006							
Confirmed Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Norovirus	IL	11	22			green salad	Restaurant or deli
Norovirus	IL	12	46	1	0		Restaurant or deli
Norovirus	IL	12	16	0	0		Restaurant or deli
Norovirus	IN	5	31	0	0	sandwich, turkey	Banquet facility
Norovirus	IN	7	21	0	0		Picnic;
Norovirus	IN	8	28	0	0		Restaurant or deli
Norovirus	IN	10	100				Restaurant or deli
Norovirus	IN	12	23		0		Restaurant or deli
Norovirus	IN	12	15	1	0		Restaurant or deli
Norovirus	KS	4	8	0	0		Restaurant or deli
Norovirus	KS	12	7	0	0		Restaurant or deli; Private home
Norovirus	MA	1	121				School
Norovirus	MA	4	24	0	0		Banquet facility
Norovirus	MA	4	7	1	0		Restaurant or deli
Norovirus	MA	5	31		0		Banquet facility
Norovirus	MA	5	19	0	0		Restaurant or deli; Office setting
Norovirus	MA	10	49	1	0		Camp
Norovirus	MA	12	16	0	0		School
Norovirus	MD	6	24	0	0		Private home
Norovirus	MD	6	4	0	0		Restaurant or deli
Norovirus	MD	6	9	0	0	ribs, pork	Restaurant or deli
Norovirus	MD	11	10	0	0		Banquet facility
Norovirus	MD	11	20	4	0	cake, unspecified	Restaurant or deli; Banquet facility
Norovirus	MD	12	17	0	0	house salad	Restaurant or deli
Norovirus	MD	12	4	1	0	house salad	Restaurant or deli
Norovirus	MD	12	13	0	0		Other
Norovirus	ME	11	18	3			Nursing home
Norovirus	ME	12	48				
Norovirus	ME	12	10				Nursing home
Norovirus	MI	1	495	8	0		Other; Restaurant or deli; Private home
Norovirus	MI	4	70	0	0	salad dressing, unspecified	Restaurant or deli
Norovirus	MI	4	28	0	0		Office setting
Norovirus	MI	4	108	5	0	lettuce based salads	Restaurant or deli; Private home
Norovirus	MI	5	23			jello salad	Workplace cafeteria
Norovirus	MI	6	72	3	0		Restaurant or deli
Norovirus	MI	6	17	0	0	sandwich, turkey	Hospital
Norovirus	MI	7	188		0		Workplace cafeteria
Norovirus	MI	7	23	0	0	salmon, smoked	Other
Norovirus	MI	8	27	0	0		Other
Norovirus	MI	8	22	0	0		Private home
Norovirus	MI	10	100	2	0		Restaurant or deli
Norovirus	MI	11	318	10	0		Restaurant or deli
Norovirus	MI	12	61	1	0	fruit salad; green salad; pasta salad	Office setting
Norovirus	MI	12	15	0	0		Restaurant or deli
Norovirus	MN	1	12	0	0	sandwich, submarine	School
Norovirus	MN	1	18	0	0	other food	Banquet facility
Norovirus	MN	1	24	0	0		Restaurant or deli
Norovirus	MN	1	19	0	0	salad bar; buffet	Banquet facility

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Foodborne Outbreaks Due to Confirmed Viral Etiologies, 2006							
Confirmed Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Norovirus	MN	2	6	0	0	lettuce-based salads unspecified	Restaurant or deli
Norovirus	MN	2	22	1	0	sandwich, submarine	Restaurant or deli
Norovirus	MN	2	81	0	0		Banquet facility
Norovirus	MN	2	8	0	0		Restaurant or deli; Banquet facility
Norovirus	MN	2	6	0	0		Restaurant or deli
Norovirus	MN	3	14	1	0		Workplace, not cafeteria
Norovirus	MN	3	7	0	0		Restaurant or deli
Norovirus	MN	4	9	0	0	fried onions/onion rings, unspecified	Restaurant or deli
Norovirus	MN	5	23		0	potato, unspecified; unspecified fruit	Restaurant or deli
Norovirus	MN	5	8	0	0	sandwich, other	Prison, jail
Norovirus	MN	5	60	0	0	lettuce based salads	Restaurant or deli
Norovirus	MN	7	30	0	0		Restaurant or deli
Norovirus	MN	7	14	0	0	ice tea	Restaurant or deli
Norovirus	MN	8	10	0	0		Restaurant or deli
Norovirus	MN	8	14	0	0		Restaurant or deli
Norovirus	MN	8	25	1	0		Restaurant or deli
Norovirus	MN	9	24	0	0	cucumber salad	Banquet facility
Norovirus	MN	10	32	1	0		Other
Norovirus	MN	10	14	0	0		Restaurant or deli
Norovirus	MN	10	29	0	0	sandwich, unspecified	Restaurant or deli
Norovirus	MN	10	6	0	0		Restaurant or deli
Norovirus	MN	11	8	0	0	sandwich, submarine	Restaurant or deli; Office setting
Norovirus	MN	11	16	0	0		Restaurant or deli
Norovirus	MN	11	14	0	0	vegetable tray	Other
Norovirus	MN	11	13	0	0	multiple salads	Restaurant or deli; Office setting
Norovirus	MN	11	2	0	0		Restaurant or deli
Norovirus	MN	11	13	0	0		Restaurant or deli
Norovirus	MN	11	8	0	0	egg rolls	Restaurant or deli
Norovirus	MN	11	4	0	0		Restaurant or deli
Norovirus	MN	12	120	0	0	sandwich, unspecified	School
Norovirus	MN	12	39	0	0		Restaurant or deli
Norovirus	MN	12	4	0	0		Restaurant or deli
Norovirus	MN	12	14	0	0	coleslaw	Restaurant or deli
Norovirus	MN	12	3	0	0		Restaurant or deli; Private home
Norovirus	MN	12	5	0	0		Restaurant or deli
Norovirus	MN	12	6	1	0		Restaurant or deli
Norovirus	MN	12	2	0	0		Restaurant or deli
Norovirus	MN	12	3	0	0		Restaurant or deli
Norovirus	MS	5	250	1	0	potato salad	Banquet facility
Norovirus	MT	3	249	23			Restaurant or deli
Norovirus	NC	1	42			mixed fruit	Restaurant or deli
Norovirus	NC	1	20	0	0		Office setting
Norovirus	NC	1	20	0	0		Office setting
Norovirus	NC	3	17	0	0		Nursing home
Norovirus	NC	5	22	1	0	crab salad	Restaurant or deli
Norovirus	NC	7	43	0	0		Camp
Norovirus	NC	10	39	4	0		Nursing home
Norovirus	ND	1	44	0	0		Other

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Foodborne Outbreaks Due to Confirmed Viral Etiologies, 2006							
Confirmed Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Norovirus	ND	4	27	0	0	chicken, nuggets/fingers	Restaurant or deli
Norovirus	ND	6	37	0	0	mixed fruit	Other; Restaurant or deli
Norovirus	ND	6	4	0	0		Other
Norovirus	ND	10	26	1	0		Restaurant or deli
Norovirus	ND	10	16	0	0		Private home
Norovirus	NH	12	17	0	0		Private home
Norovirus	NJ	5	14	0	0		Restaurant or deli
Norovirus	NJ	5	14				
Norovirus	NJ	5	45		0	green salad	School
Norovirus	NM	2	164	0	0		Other
Norovirus	NY	3	45	1	0	Danish pastries	Workplace, not cafeteria
Norovirus	NY	6	7	0	0		Office setting
Norovirus	NY	9	39	0	0	rolls	Restaurant or deli
Norovirus	NY	11	25	0	0	green salad; cheese spread; Beverage with ice, unspecified	Banquet facility; Wedding reception
Norovirus	NY	12	26	0	0	sandwich, deli	Church, temple, etc
Norovirus	NY	12	9	0	0		Restaurant or deli
Norovirus	NY	12	5	0	0	ground beef, hamburger	Restaurant or deli
Norovirus	OH	2	24	1	0	sandwich, turkey	Office setting
Norovirus	OH	4	12			pizza, unspecified	Private home
Norovirus	OH	4	9		0	sandwich, other	Picnic;
Norovirus	OH	4	5	0	0	chicken and rice	Other
Norovirus	OH	4	15	1	0		Restaurant or deli; Church, temple, etc
Norovirus	OH	4	33	0	0		Church, temple, etc
Norovirus	OH	4	3		0	multiple salads	Restaurant or deli
Norovirus	OH	5	4	0	0	ham, other	Other
Norovirus	OH	5	10				Private home
Norovirus	OH	5	15	1	0		Private home
Norovirus	OH	5	15	1	0	lettuce-based salads, unspecified	Restaurant or deli
Norovirus	OH	5	18	0	0	lettuce-based salads unspecified; cake, unspecified; chicken dishes; meatballs; pasta	Banquet facility; Wedding reception
Norovirus	OH	5	6	0	0		Restaurant or deli
Norovirus	OH	5	14	0	0	salad bar	Restaurant or deli
Norovirus	OH	5	127	0	0	antipasto; unspecified fruit	Banquet facility; Wedding reception
Norovirus	OH	5	5	0	0		Restaurant or deli; Day care center
Norovirus	OH	6	29	1	0	roast beef, unspecified	Wedding reception;
Norovirus	OH	6	38	1	0	ice	Restaurant or deli; Banquet facility; Wedding reception
Norovirus	OH	6	14	1	0		Office setting
Norovirus	OH	6	100	1	0	potato salad	Private home
Norovirus	OH	6	20	0	0	multiple cheeses, pasteurized; vegetable tray/ ; beverage with ice, unspecified	Restaurant or deli
Norovirus	OH	6	113	1	0	guacamole, unspecified	Restaurant or deli
Norovirus	OH	6	5				Private home
Norovirus	OH	7	36	1	0		Private home
Norovirus	OH	7	7			sandwich, deli	Restaurant or deli
Norovirus	OH	8	2	0	0	pizza, unspecified	Private home
Norovirus	OH	8	3	1	0		Other; Restaurant or deli
Norovirus	OH	8	3	0	0		Restaurant or deli

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Foodborne Outbreaks Due to Confirmed Viral Etiologies, 2006							
Confirmed Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Norovirus	OH	8	24	0	0		Restaurant or deli; Workplace, not cafeteria
Norovirus	OH	8	19	0	0		Restaurant or deli
Norovirus	OH	9	3	0	0		Restaurant or deli
Norovirus	OH	10	14	0	0	lettuce-based salads unspecified	Restaurant or deli
Norovirus	OH	11	2				Restaurant or deli
Norovirus	OH	11	28		0		Restaurant or deli
Norovirus	OH	11	4	2	0		Restaurant or deli
Norovirus	OH	11	12	1	0	lettuce-based salads unspecified; salad bar	Restaurant or deli
Norovirus	OH	11	2	0	0		Private home
Norovirus	OH	11	5		0		Restaurant or deli
Norovirus	OH	12	14	0	0		Restaurant or deli; Workplace, not cafeteria
Norovirus	OH	12	11	2	0	fried onions/onion rings, unspecified; dips, unspecified	Restaurant or deli
Norovirus	OH	12	60	0	0		Banquet facility
Norovirus	OH	12	6	1	0		Other; Restaurant or deli
Norovirus	OH	12	12	0	0		Banquet facility
Norovirus	OH	12	6	0	0	milkshake	Restaurant or deli
Norovirus	OK	5	6	0	0	cake, unspecified	Other
Norovirus	OK	7	21	0	0	unspecified vegetables; lettuce based salads; shrimp dishes unspecified	Restaurant or deli
Norovirus	OK	10	14	0	0		Other
Norovirus	OR	1	16	0	0	salad bar	Restaurant or deli
Norovirus	OR	2	6	0	0	oysters, raw	Fair, festival, temporary mobile service
Norovirus	OR	3	2	0	0	oysters, raw	Restaurant or deli
Norovirus	OR	5	11	0	0		Restaurant or deli
Norovirus	OR	5	5	0	0		Restaurant or deli; Private home
Norovirus	OR	5	23	0	0		Wedding reception;
Norovirus	OR	5	37	0	0		Restaurant or deli
Norovirus	OR	6	17	0	0	salsa, unspecified	Restaurant or deli
Norovirus	OR	6	17	0	0	ice	Restaurant or deli
Norovirus	OR	7	16	0	0	ham, other	Wedding reception;
Norovirus	OR	7	9	0	0		Private home
Norovirus	OR	9	12	0	0		Office setting
Norovirus	OR	11	13	0	0	oysters	Other
Norovirus	OR	12	8	0	0		Other
Norovirus	PA	3	3	0	0		Unknown or undetermined
Norovirus	PA	4	36	0	0	meatballs; green salad;	Church, temple, etc
Norovirus	PA	5	12	2	0		Nursing home
Norovirus	PA	6	30	1	0		Banquet facility; Wedding reception
Norovirus	PA	6	37	8	0	salad, unspecified	Nursing home
Norovirus	PA	9	17	0	0	tomato, unspecified; tea	Private home
Norovirus	PA	11	7	0	0		Restaurant or deli
Norovirus	PA	11	56		0	potato salad	Other; Banquet facility
Norovirus	PA	11	15		0		Restaurant or deli
Norovirus	PA	12	13	0	0	green beans, unspecified	Restaurant or deli
Norovirus	PA	12	47	0	0		Banquet facility
Norovirus	RI	4	99	0	0	lettuce based salads	Banquet facility
Norovirus	RI	6	22	1	0		Restaurant or deli; Banquet facility

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Foodborne Outbreaks Due to Confirmed Viral Etiologies, 2006							
Confirmed Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Norovirus	SC	6	35	0	0		Other
Norovirus	SC	7	28	0	0		Restaurant or deli
Norovirus	SC	12	55	0	0		Banquet facility
Norovirus	TN	2	6	0	0		Restaurant or deli; Church, temple, etc
Norovirus	TN	3	80	0	0		Restaurant or deli
Norovirus	TN	3	25	0	0		Camp
Norovirus	TN	4	16	0	0		
Norovirus	TN	4	70	1	0	coleslaw	Church, temple, etc
Norovirus	TN	4	27	0	0		Private home; Wedding reception
Norovirus	TN	5	15	1	0		Office setting
Norovirus	TN	11	11	3	0	chicken salad	Office setting; Workplace, not cafeteria
Norovirus	TN	12	3	0	0		Office setting
Norovirus	TN	12	25	0	0		Banquet facility
Norovirus	TN	12	11	0	0		Restaurant or deli
Norovirus	TX	6	49	1	0		Other
Norovirus	VA	1	24				School
Norovirus	VA	2	12	0	0		Restaurant or deli
Norovirus	VA	4	75	0	0		Other; Banquet facility
Norovirus	VA	9	9	0	0	lettuce-based salads unspecified	Workplace, not cafeteria
Norovirus	WA	6	77			meat, other	Fair, festival, temporary mobile service
Norovirus	WA	8	31			lettuce-based salads unspecified	Restaurant or deli
Norovirus	WA	10	16	0	0		Restaurant or deli
Norovirus	WA	10	10	0	0	oysters, raw	Restaurant or deli
Norovirus	WA	11	25	0	0	desserts	Restaurant or deli
Norovirus	WI	1	12	0	0	ground beef, sloppy joe; chicken, other	Prison, jail
Norovirus	WI	1	14	0	0	mixed fruit	Private home
Norovirus	WI	2	9	0	0	pastry, unspecified	Office setting
Norovirus	WI	3	7	0	0		Restaurant or deli
Norovirus	WI	4	19	2	0		Restaurant or deli
Norovirus	WI	4	21	0	0		Restaurant or deli
Norovirus	WI	4	25	2	0		Other
Norovirus	WI	4	29	0	0		Other
Norovirus	WI	4	23	3	0		Restaurant or deli
Norovirus	WI	4	25	2	0		Other
Norovirus	WI	4	20	0	0	ranch dressing	Restaurant or deli
Norovirus	WI	4	9	0	0	sandwich, submarine	Private home
Norovirus	WI	5	8	0	0		Restaurant or deli
Norovirus	WI	5	48	2	0	broccoli, unspecified	Restaurant or deli
Norovirus	WI	5	23	0	0		Restaurant or deli
Norovirus	WI	6	6	0	0		Restaurant or deli
Norovirus	WI	6	9	0	0		Restaurant or deli
Norovirus	WI	6	5	0	0		Restaurant or deli
Norovirus	WI	6	30				Restaurant or deli; School
Norovirus	WI	6	28	0	0		Restaurant or deli
Norovirus	WI	7	15	2	0	beef/steak dish, other	Restaurant or deli
Norovirus	WI	7	62	0	0	cake, unspecified	Restaurant or deli; Banquet facility; Nursing home
Norovirus	WI	10	17	0	0		Church, temple, etc
Norovirus	WI	10	19	0	0		Restaurant or deli

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Foodborne Outbreaks Due to Confirmed Viral Etiologies, 2006							
Confirmed Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Norovirus	WI	10	17	0	0		Restaurant or deli
Norovirus	WI	11	32	1	0		Restaurant or deli
Norovirus	WI	12	5	0	0		Private home
Norovirus	WI	12	19	0	0	cake, unspecified	Other
Norovirus	WI	12	11	0	0		Private home
Norovirus	WI	12	66	0	0		Other
Norovirus	WI	12	33		0	beef, other	Other
Norovirus	WI	12	24		0	sausage, beef	Restaurant or deli
Norovirus	WY	9	30				Other
Other viral	AK	9	52	0	0		Restaurant or deli
Foodborne Outbreaks Due to Suspect Viral Etiologies, 2006							
Suspect Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Norovirus	AZ	1	18	0	0		Restaurant or deli
Norovirus	AZ	3	26	0	0	pie, apple	Other
Norovirus	AZ	4	4				
Norovirus	AZ	11	4	0	0		Restaurant or deli
Norovirus	CA	1	5	0	0		Restaurant or deli
Norovirus	CA	1	9		0		Private home
Norovirus	CA	1	14	0	0		Camp
Norovirus	CA	2	16	0	0	multiple foods	Workplace, not cafeteria
Norovirus	CA	2	6	0	0		Restaurant or deli
Norovirus	CA	2	5	0	0	salad, unspecified	Private home
Norovirus	CA	2	10				
Norovirus	CA	2	38	0	0	multiple foods	Office setting
Norovirus	CA	3	16	0	0	multiple foods	Restaurant or deli
Norovirus	CA	3	3			appetizer	Restaurant or deli
Norovirus	CA	3	6				
Norovirus	CA	3	30	0	0		Nursing home
Norovirus	CA	3	45	1	0		Nursing home
Norovirus	CA	3	6	0	0		Other
Norovirus	CA	3	7	0	0		Workplace, not cafeteria
Norovirus	CA	4	9	0	0	sushi, unspecified; unspecified fruit	Restaurant or deli
Norovirus	CA	4	5	0	0	vegetable tray	Restaurant or deli
Norovirus	CA	4	9	0	0	bread, unspecified	Unknown or undetermined
Norovirus	CA	4	11	0	0		Restaurant or deli
Norovirus	CA	4	5	0	0		Office setting
Norovirus	CA	4	108		0	mixed fruit; sandwich, beef	Other
Norovirus	CA	5	4	0	0	cake, cheese	Restaurant or deli; Private home
Norovirus	CA	5	9	0	0		Restaurant or deli
Norovirus	CA	5	7				Workplace, not cafeteria
Norovirus	CA	5	6				Workplace, not cafeteria
Norovirus	CA	6	8	0	0	multiple foods	Private home
Norovirus	CA	6	28	0	0		Banquet facility; Wedding reception
Norovirus	CA	6	57	0	0	potato salad	Office setting
Norovirus	CA	7	12			pie	Private home; Workplace, not cafeteria
Norovirus	CA	7	4	0	0		Office setting

ML*=Multi State Outbreak

Vehicle*=Food item as entered in the electronic foodborne outbreak reporting system by agency

Foodborne Outbreaks Due to Suspect Viral Etiologies, 2006							
Suspect Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Norovirus	CA	7	15				Workplace, not cafeteria
Norovirus	CA	7	4	0	0		Restaurant or deli
Norovirus	CA	8	6			rice ; beans, unspecified	Restaurant or deli
Norovirus	CA	8	44			multiple foods	Banquet facility
Norovirus	CA	9	12	0	0		Private home
Norovirus	CA	9	6	0	0	cake	Workplace, not cafeteria
Norovirus	CA	9	4	0	0		Banquet facility
Norovirus	CA	10	15	0	0	barbeque, unspecified	Private home
Norovirus	CA	11	5	1	0	multiple foods	Restaurant or deli
Norovirus	CA	11	3	0	0	mutiple Mexican foods	Private home
Norovirus	CA	11	16	1	0		Banquet facility; Private home; Wedding reception
Norovirus	CA	11	31	0	0		Workplace, not cafeteria
Norovirus	CA	12	8	0	0		Private home
Norovirus	CA	12	15	0	0	beverage with ice, unspecified	Other
Norovirus	CA	12	20	0	0		Private home
Norovirus	CA	12	4	0	0	shrimp & artichoke dip	Restaurant or deli
Norovirus	CA	12	8	0	0	tuna salad	Church, temple, etc
Norovirus	CA	12	125	1	0	salsa, unspecified	
Norovirus	CO	3	44	0	0		Restaurant or deli
Norovirus	CO	3	7	0	0		Restaurant or deli
Norovirus	CO	6	11	0	0		Restaurant or deli
Norovirus	CO	6	22	0	0	sandwich, speciality	Workplace, not cafeteria
Norovirus	CO	7	13	0	0	fish, raw fish	Restaurant or deli
Norovirus	CO	8	90	0	0		Banquet facility
Norovirus	CO	8	22	0	0		Restaurant or deli; Banquet facility; Picnic
Norovirus	CO	9	22	0	0		Banquet facility; Wedding reception
Norovirus	CO	11	4	0	0		Restaurant or deli
Norovirus	CO	11	10	0	0	sandwich, deli	Office setting
Norovirus	CO	12	7	0	0	chocolate torte	Restaurant or deli; Private home
Norovirus	CT	2	19	0	0		Restaurant or deli
Norovirus	CT	10	5	0	0	sandwich, deli	Restaurant or deli; Office setting
Norovirus	CT	11	7	0	0	chicken	Restaurant or deli
Norovirus	FL	1	8			house salad	Restaurant or deli
Norovirus	FL	2	44	0	0		Other
Norovirus	FL	2	9	0	0		Restaurant or deli
Norovirus	FL	3	2			lemonade	Restaurant or deli
Norovirus	FL	3	2			buffet	Restaurant or deli
Norovirus	FL	4	5			sandwich, beef	Private home
Norovirus	FL	4	3			pizza, cheese	Restaurant or deli
Norovirus	FL	5	3			sandwich, chicken parmesan	Restaurant or deli
Norovirus	FL	5	2			ground beef, meatloaf	Restaurant or deli
Norovirus	FL	5	3			spring rolls, unspecified	Restaurant or deli
Norovirus	FL	5	2			pork, sweet and sour	Restaurant or deli
Norovirus	FL	6	16			house salad	Restaurant or deli
Norovirus	FL	6	4			greek salad	Restaurant or deli

ML*=Multi State Outbreak

Vehicle*=Food item as entered in the electronic foodborne outbreak reporting system by agency

Foodborne Outbreaks Due to Suspect Viral Etiologies, 2006							
Suspect Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Norovirus	FL	7	2			stir-fry, beef	Private home
Norovirus	FL	10	3			potato salad	Restaurant or deli
Norovirus	FL	12	3			ground beef, other; iceberg lettuce, unspecified	Restaurant or deli
Norovirus	FL	12	10	1	0		Restaurant or deli
Norovirus	FL	12	43	0	0	sandwich, submarine	Fair, festival, temporary mobile service
Norovirus	FL	12	4	0	0		Restaurant or deli
Norovirus	GA	1	2	0	0		Restaurant or deli
Norovirus	GA	4	50	0	0		Wedding reception; Church, temple, etc
Norovirus	GA	7	40	0	0	salads; glazed carrots	Other; Restaurant or deli
Norovirus	GA	8	11	0	0		Restaurant or deli
Norovirus	IA	11	97	2	0	green salad	Restaurant or deli
Norovirus	IL	2	7	0	0		Private home
Norovirus	IL	3	13	1	0	vegetable-based salads unspecified	Restaurant or deli
Norovirus	IL	4	20	0	0		Private home
Norovirus	IL	4	23	0	0	ice	Other
Norovirus	IL	8	3	0	0		Restaurant or deli
Norovirus	IL	12	22	0	0	corned beef, unspecified	Restaurant or deli
Norovirus	KS	3	9	0	0		Private home
Norovirus	KS	12	6	0	0		Private home
Norovirus	MD	12	7	0	0		Restaurant or deli
Norovirus	ME	11	8	0			Nursing home
Norovirus	ME	12	42				
Norovirus	MN	1	11	0	0	sandwich, ham	Restaurant or deli
Norovirus	MN	1	16	0	0	unspecified fruit	Other
Norovirus	MN	2	4	0	0		Restaurant or deli; Private home
Norovirus	MN	4	13	0	0	cake, unspecified	Private home
Norovirus	MN	4	11	0	0	sandwich, turkey	Workplace, not cafeteria
Norovirus	MN	5	19	4	0		Other
Norovirus	MN	10	6	0	0		Restaurant or deli
Norovirus	MN	11	12	0	0	sandwich, unspecified	School
Norovirus	MN	11	25	0	0	pasta salad	Banquet facility
Norovirus	MN	12	21	0	0		Fair, festival, temporary mobile service
Norovirus	MS	7	7	0	0		Restaurant or deli
Norovirus	NC	10	47				Nursing home
Norovirus	NC	10	49		0		Nursing home
Norovirus	ND	4	10	2	0		Restaurant or deli
Norovirus	NH	4	25	0	0		Banquet facility
Norovirus	NH	11	5	3	0		Church, temple, etc
Norovirus	NJ	4	160	0	0		Banquet facility
Norovirus	NJ	6	11	3			Private home
Norovirus	NY	8	10	1	0	cake	Restaurant or deli
Norovirus	NY	10	11	1	0		School
Norovirus	NY	12	8	0	0		Restaurant or deli
Norovirus	OH	2	2	0	0		Private home
Norovirus	OH	4	2	0	0		Restaurant or deli

ML*=Multi State Outbreak

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Foodborne Outbreaks Due to Suspect Viral Etiologies, 2006							
Suspect Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Norovirus	OH	11	2	0	0		Restaurant or deli
Norovirus	OH	12	10	0	0		Workplace, not cafeteria
Norovirus	OH	12	2				Restaurant or deli
Norovirus	OH	12	6	0	0		Private home
Norovirus	OR	1	8	0	0	oysters, unspecified	Restaurant or deli
Norovirus	OR	4	15	0	0		Restaurant or deli
Norovirus	OR	11	11	0	0	cake, unspecified	Wedding reception;
Norovirus	OR	12	3	0	0		Restaurant or deli
Norovirus	OR	12	3	1	0		Restaurant or deli
Norovirus	OR	12	5	0	0		Office setting
Norovirus	OR	12	16	1	0	tuna salad	Church, temple, etc
Norovirus	PA	2	4	0	0		Unknown or undetermined
Norovirus	PA	8	15				Picnic;
Norovirus	PA	8	23	1	0		Restaurant or deli; Banquet facility
Norovirus	PA	11	33	0	0	spinach dip; potato chips; rolls; tuna salad; wedding soup; candy, chocolate; antipasto salad; cream puffs; seafood dip	School
Norovirus	SC	5	15	0	0		Private home
Norovirus	SD	11	18	0	0		Workplace, not cafeteria
Norovirus	TN	7	29	0	0		Workplace, not cafeteria
Norovirus	WA	2	6	0	0		Restaurant or deli
Norovirus	WA	3	6			green salad	Restaurant or deli
Norovirus	WA	4	76			cake	Nursing home
Norovirus	WA	4	43			shrimp, steamed	Banquet facility
Norovirus	WA	5	4	0	0	sandwich, deli	Restaurant or deli
Norovirus	WA	6	38				Restaurant or deli
Norovirus	WA	6	8				Restaurant or deli
Norovirus	WA	7	10	2			Restaurant or deli
Norovirus	WA	8	25				School
Norovirus	WA	8	7				Office setting
Norovirus	WA	9	4				Restaurant or deli
Norovirus	WA	10	5	0	0		Restaurant or deli
Norovirus	WA	10	8	0	0	sandwich, deli	
Norovirus	WA	11	4	0	0	oysters, raw	Private home
Norovirus	WA	12	18	0	0	cheesecake	Restaurant or deli
Norovirus	WA	12	17				Office setting
Norovirus	WA	12	46	0	0	mixed fruit	Restaurant or deli
Norovirus	WA	12	4	0	0	oysters, raw	
Norovirus	WA	12	8	0			Private home
Norovirus	WA	12	10	0	0	salad, unspecified	Restaurant or deli
Norovirus	WA	12	21				Restaurant or deli
Norovirus	WY	12	18	0	0	coleslaw; alcohol, unspecified; cake, cheese; mixed fruit; soup, turkey	Restaurant or deli; Workplace cafeteria; Banquet facility
Norovirus	WY	12	50	1			Banquet facility; Wedding reception

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Foodborne Outbreaks Due to Confirmed Chemical Etiologies, 2006							
Confirmed Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Ciguatoxin	FL	3	8	3	0	black grouper	Private home
Ciguatoxin	FL	8	5	1	0	sphyraena barracuda	Private home
Ciguatoxin	FL	8	7			sphyraena barracuda	Private home
Ciguatoxin	FL	8	3			fish, baracuda	
Ciguatoxin	FL	9	3	3	0	fish, baracuda	Private home
Ciguatoxin	FL	10	3			fish, grouper, unspecified	
Ciguatoxin	HI	6	6	4	0	fish, roi	Private home
Ciguatoxin	HI	9	5	2	0	fish, kole	Camp
Ciguatoxin	HI	10	2	0	0	other fish	Private home
Ciguatoxin	HI	11	3	0	0	fish, roi	Private home
Histamine	AZ	8	5	0	0	fish, escolar	Restaurant or deli
Histamine	VA	3	6	0	0	tuna, unspecified; tuna salad	Restaurant or deli
Monosodium glutamate (MSG)	FL	4	2	0	0	soup, wonton	Private home
Mushroom toxins	CA	3	5	3	0	mushrooms	Private home
Mushroom toxins	MN	9	6	6	1	mushrooms	Private home
Mushroom toxins	NY	9	2	2	0	mushrooms, unspecified	Private home
Mushroom toxins	WA	5	3	3	0	mushrooms	
Neurotoxic Shellfish Poison	FL	7	13	5	0	clams	Private home
Neurotoxic Shellfish Poison	FL	10	2	1	0	clams, raw	Private home
Other chemical	ML	12	11	1	0	bun; doughnuts, unspecified; Danish pastries	Private home
Other chemical	NY	8	2	2	0	susumber berries	Private home
Other chemical	OH	10	2	0	0	other food	Private home
Plant toxins(Herbal toxins)	OR	12	15	1	0	cookies, unspecified	Workplace, not cafeteria
Scombroid toxin	CA	4	2	2	0	fish, albacore	Restaurant or deli
Scombroid toxin	CA	8	2	0	0	fish, ahi	Restaurant or deli
Scombroid toxin	CO	4	5	0	0	fish, mahi mahi	Office setting
Scombroid toxin	CO	6	3	0	0	fish, mahi mahi	Workplace cafeteria
Scombroid toxin	FL	4	2			fish, mahi mahi	Restaurant or deli
Scombroid toxin	FL	4	2			fish, mahi mahi	Restaurant or deli
Scombroid toxin	FL	12	3	0	0	fish, escolar	Restaurant or deli
Scombroid toxin	HI	4	4	0	0	fish, mahi mahi	Private home
Scombroid toxin	HI	4	2	0	0	fish, mahi mahi	Restaurant or deli
Scombroid toxin	HI	6	2	0	0	fish, mahi mahi	Private home
Scombroid toxin	HI	10	2	0	0	fish, mahi mahi	Restaurant or deli
Scombroid toxin	HI	10	3	0	0	fish, mackeral	Other
Scombroid toxin	LA	12	6	1	0	tuna, unspecified	Workplace cafeteria
Scombroid toxin	MN	2	2	1	0	tuna, unspecified	Restaurant or deli
Scombroid toxin	MN	5	2	0	0	fish, escolar	Restaurant or deli
Scombroid toxin	MN	5	4		0	tuna, unspecified	Restaurant or deli
Scombroid toxin	MN	5	4	0	0	fish, escolar	Restaurant or deli
Scombroid toxin	MN	5	18	0	0	fish, escolar	Restaurant or deli
Scombroid toxin	NY	4	2	0	0	fish, tuna	Restaurant or deli
Scombroid toxin	NY	7	2	0	0	tuna, unspecified	Restaurant or deli
Scombroid toxin	NY	8	2	0	0	tuna, unspecified	Restaurant or deli
Scombroid toxin	NY	11	2	2	0	fish, mahi mahi	Restaurant or deli
Scombroid toxin	OH	1	2	0	0	yellowfin tuna	Private home
Scombroid toxin	OH	8	2			fish, escolar	Private home
Scombroid toxin	PA	4	7	0	0	tuna, unspecified	Restaurant or deli
Scombroid toxin	TN	11	5	0	0	tuna, unspecified	Restaurant or deli
Scombroid toxin	WA	6	2			fish, ahi	Restaurant or deli
Scombroid toxin	WA	6	4			fish, ahi	Restaurant or deli
Scombroid toxin	WA	9	2			hamachi fish	Restaurant or deli
Scombroid toxin	WI	8	2	0	0	fish, escolar	Restaurant or deli

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Foodborne Outbreaks Due to Suspect Chemical Etiologies, 2006							
Suspect Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle	Location
Cleaning Agents	FL	6	2			multiple foods	Restaurant or deli
Cleaning Agents	OH	6	2				Restaurant or deli
Other chemical	CA	1	2	0	0		Restaurant or deli
Other chemical	CA	4	3	0	0		Restaurant or deli
Other chemical	CA	7	2	0	0	chicken, other	Restaurant or deli
Other chemical	CA	8	4	0	0	french fries	Restaurant or deli
Other chemical	CA	9	13	0	0		Workplace, not cafeteria
Other chemical	CA	10	4	0	0	multiple foods	Restaurant or deli
Other chemical	OH	3	3			coffee	Private home
Other chemical	OH	7	2	0	0	soda, unspecified	Other
Puffer fish tetrodotoxin	CA	11	2	2	0	soup, puffer fish	Restaurant or deli

Foodborne Outbreaks Due to Confirmed Parasitic Etiologies, 2006							
Confirmed Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Cryptosporidium parvum	ME	5	14	1	0		
Cryptosporidium parvum	PA	1	2	1	0		Unknown or undetermined
Cyclospora cayatenensis	GA	7	3	0	0		Workplace, not cafeteria
Cyclospora cayatenensis	MN	6	14	0	0	fruit salad	Restaurant or deli
Cyclospora cayatenensis	NY	6	20	1	0		Restaurant or deli
Giardia lamblia	CA	1	48				Church, temple, etc
Giardia lamblia	NY	10	8	0	0		School
Other parasitic	CA	8	18	2	0	crab, unspecified	Restaurant or deli
Trichinella spiralis	CA	10	2	1	0	bear, unspecified	Other
Foodborne Outbreaks Due to Suspect Parasitic Etiologies, 2006							
Suspect Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Cryptosporidium parvum	ME	7	2				
Cryptosporidium parvum	MI	7	12	0	0		Restaurant or deli
Giardia lamblia	FL	9	4	0	0		Restaurant or deli

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Foodborne Outbreaks Due to Multiple (Confirmed) Etiologies, 2006							
Multiple Etiology	State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
Bacillus cereus (Suspect); Clostridium perfringens (Suspect)	CA	11	3	0	0	mutiple mexican foods	Workplace, not cafeteria
Bacillus cereus (Suspect); Clostridium perfringens (Suspect)	CA	2	28	0	0	ca]on maque chou	Workplace, not cafeteria
Bacillus cereus (Suspect); Clostridium perfringens (Suspect)	CA	4	9	0	0		Restaurant or deli
Bacillus cereus (Suspect); Clostridium perfringens (Suspect)	CA	4	5	0	0		Restaurant or deli
Bacillus cereus (Suspect); Clostridium perfringens (Suspect)	CA	4	11	0	0	carne asada	Picnic
Bacillus cereus (Suspect); Clostridium perfringens (Suspect)	CA	4	16	0	0		Restaurant or deli
Bacillus cereus (Suspect); Clostridium perfringens (Suspect)	CA	6	6			water, unspecified	Banquet facility
Bacillus cereus (Suspect); Clostridium perfringens (Suspect)	CA	7	11	1	0		Banquet facility; Wedding reception
Bacillus cereus (Suspect); Clostridium perfringens (Suspect)	CA	7	6	0	0	chicken	Restaurant or deli
Bacillus cereus (Suspect); Clostridium perfringens (Suspect)	CA	7	7	0	0	beans, unspecified	Restaurant or deli
Bacillus cereus (Suspect); Clostridium perfringens (Suspect)	CA	11	6	1	0		Restaurant or deli
Bacillus cereus (Suspect); Clostridium perfringens (Suspect)	CA	11	21	0	0	turkey, baked	Other
Bacillus cereus (Suspect); Clostridium perfringens (Suspect)	CA	12	10	0	0	chicken, curry	Fair, festival, temporary mobile service
Bacillus cereus (Suspect); Clostridium perfringens (Suspect)	CA	12	11		0	pizza, unspecified	School
Bacillus cereus (Suspect); Clostridium perfringens (Suspect)	CA	12	20	0	0	chicken, unspecified	Private home
Bacillus cereus (Suspect); Clostridium perfringens (Suspect)	OH	5	53	1	0	roast beef, unspecified; noodles, unspecified	Banquet facility; Wedding reception
Bacillus cereus (Suspect); Staphylococcus aureus (Suspect)	CA	12	9	0	0	mutiple mexican foods	Other
Clostridium perfringens (Suspect); Bacillus cereus (Suspect)	CA	4	5	0	0	chicken, other	Private home
Salmonella Enteritidis (Suspect) ; Campylobacter jejuni (Suspect)	WI	11	2	2	0	turkey, baked	Private home
Salmonella Heidelberg (Confirmed); Salmonella Agona (Suspect)	NY	6	32	0	0	scallop, conch, sea cucumber	Restaurant or deli
Salmonella Newport (Confirmed); Salmonella Meleagridis (Confirmed)	IL	3	96	36	0	other cheese, unpasteurized	Private home
Salmonella unknown (Suspect); E. coli., Enterohemorrhagic Uspecified (Suspect)	CA	7	15	0	0	mutiple mexican foods	Private home

ML*=Multi State Outbreak

Vehicle*=Food item as entered in the electronic foodborne outbreak reporting system by agency

Foodborne Outbreaks Due to Unknown Etiologies, 2006						
State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
AK	10	32	0	0	chicken, baked	Restaurant or deli
AR	9	33	2	0		Office setting
AZ	5	14	0	0		Restaurant or deli
AZ	7	10	0	0	burrito, beef	Workplace, not cafeteria
AZ	10	6	0	0		Restaurant or deli
AZ	10	10	0	0	beef, other	Restaurant or deli
CA	2	11	0	0	salsa, unspecified	Restaurant or deli
CA	2	18	0	0	popcorn; candy unspecified	Other
CA	2	5	0	0		Private home
CA	3	1	0			Restaurant or deli
CA	3	1	2			Banquet facility
CA	3	5	0	0		Restaurant or deli
CA	4	14	0	0	cookies, unspecified	Office setting; Fair, festival, temporary mobile service; Workplace, not cafeteria
CA	5	14	1	0		Banquet facility
CA	5	1	1			Restaurant or deli
CA	5	14	1	0		Restaurant or deli
CA	6	9	0	0		Restaurant or deli; Private home
CA	6	11	0	0		Restaurant or deli
CA	6	15	1	0		Workplace, not cafeteria
CA	7	23	1	0		Private home
CA	8	3	0	0		Restaurant or deli
CA	11	2	0	0		Restaurant or deli
CA	11	14				Other; Restaurant or deli; Banquet facility; Fair, festival, temporary mobile service; Private home
CA	12	3	0	0		Restaurant or deli
CO	4	198	0	0	pinto beans	Prison, jail
C O	5	5	0	0		
CO	5	3	0	0		Restaurant or deli
CO	8	36	0	0		Restaurant or deli
CO	12	20	0	0		Banquet facility
CO	12	5	0	0		Restaurant or deli
CO	12	19	1	0		Restaurant or deli
CT	8	29	1	0	pork, BBQ	Workplace, not cafeteria
DE	6	8	1	0		Restaurant or deli
FL	1	2			chinese	Restaurant or deli
FL	1	5			ethnic style, buffet	Restaurant or deli
FL	1	2			beef, casserole	Restaurant or deli
FL	1	2				
FL	1	26	0	0		Restaurant or deli
FL	1	14	2	0	seafood-based salad unspecified	Picnic;
FL	1	4	0	0	specialty salads unspecified	Restaurant or deli
FL	2	3			chicken, unspecified	Restaurant or deli
FL	2	2			meat/egg-based salads unspecified	Restaurant or deli
FL	2	2			lobster, unspecified; shrimp, unspecified	Restaurant or deli
FL	2	2			fish sandwich, unspecified	Restaurant or deli
FL	2	2			taco, unspecified	Restaurant or deli
FL	2	2			milkshake	Restaurant or deli
FL	3	4			oysters	Restaurant or deli
FL	3	4	0	0		Office setting
FL	4	15				Restaurant or deli
FL	4	15				Private home
FL	4	3	0	0	black tip	Private home

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Foodborne Outbreaks Due to Unknown Etiologies, 2006						
State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
FL	4	4	0	0		Restaurant or deli
FL	4	9	0	0	pork, unspecified	Private home
FL	4	17	2	0		Private home
FL	5	44				Prison, jail
FL	5	4	0	0		Restaurant or deli
FL	5	9	1	0		Banquet facility
FL	5	5			pizza, meat	Private home
FL	5	3			ground beef, hamburger	Restaurant or deli
FL	5	12				Restaurant or deli
FL	5	7	0	0	shrimp	Restaurant or deli
FL	5	2			ribs, pork; pizza, unspecified	Restaurant or deli
FL	6	2			refried beans, unspecified	Restaurant or deli
FL	6	2			seafood newberg	Restaurant or deli
FL	6	10			pizza, cheese	Banquet facility
FL	6	2			sandwich, deli	Restaurant or deli
FL	6	4			guacamole, unspecified	Restaurant or deli
FL	7	2			ground beef, cheeseburger	Private home
FL	7	3			multiple foods	Restaurant or deli
FL	7	2			shrimp, unspecified	Private home
FL	7	16	2			Banquet facility
FL	7	2	0	0		Restaurant or deli
FL	7	4			multiple foods	Restaurant or deli
FL	8	2			crab, steamed	Restaurant or deli
FL	8	4			crab, fried	Restaurant or deli
FL	9	3			fruit smoothie	Restaurant or deli
FL	9	4			pizza, meat and vegetable	Private home
FL	9	2			egg rolls	Restaurant or deli
FL	9	3	0	0	fried rice	Workplace, not cafeteria
FL	10	2			chicken, buffalo wings	Restaurant or deli
FL	10	2			chicken, buffalo wings; pizza, meat and vegetable	Restaurant or deli
FL	10	3			soup, broccoli	Restaurant or deli
FL	11	3			ethnic style buffet	Restaurant or deli
FL	11	2			fruit salad	Restaurant or deli
FL	12	6	0	0		Restaurant or deli
FL	12	8	0	0	shrimp	Restaurant or deli
FL	12	2			soup, clam chowder	Restaurant or deli
FL	12	7			ethnic style, buffet	Restaurant or deli
GA	4	3	1	0	sope	Restaurant or deli
GA	5	4	0	0		Restaurant or deli
GA	5	2				
GA	10	10	0	0		Restaurant or deli
IA	5	37	0	0		Restaurant or deli
IA	10	20	1	0		Banquet facility
ID	2	33	0	0		Restaurant or deli
ID	2	6	0	0	rice, spanish	Restaurant or deli
ID	4	11	0	0	lettuce-based salads unspecified; egg-based sauce, other	Restaurant or deli
IL	1	4	0	0		Restaurant or deli
IL	1	5	0	0	nachos, unspecified; dips	Restaurant or deli
IL	1	15	0	0		Restaurant or deli
IL	1	27			tortilla, unspecified	School
IL	2	7	0	0		Restaurant or deli

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Foodborne Outbreaks Due to Unknown Etiologies, 2006						
State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
IL	2	4	0	0		Banquet facility
IL	3	16	0	0	sandwich, vegetable-based	Hospital
IL	3	3	0	0		Restaurant or deli
IL	3	6	0	0		Restaurant or deli
IL	3	4	0	0		Restaurant or deli
IL	3	3	0	0		Restaurant or deli
IL	4	39	0	0		Church, temple, etc
IL	4	5	0	0		Restaurant or deli
IL	4	14	0	0		Restaurant or deli
IL	5	5	0	0		Office setting
IL	5	5	0	0		Restaurant or deli
IL	6	25	0	0		Other
IL	6	19	1	0		Other
IL	6	6	0	0		Private home
IL	7	10	0	0		Private home
IL	7	44	0	0	potato salad; pork, unspecified; beans, baked	Other
IL	7	18	0	0		Workplace, not cafeteria
IL	7	12	0	0		Restaurant or deli; Banquet facility
IL	7	2	1	0		Private home
IL	7	3	0	0		Restaurant or deli
IL	8	39	0	0	sandwich, club	Restaurant or deli; Workplace, not cafeteria
IL	8	2	0	0	sandwich, turkey	Workplace, not cafeteria
IL	9	52	0	0	chicken biryani	Private home
IL	9	13	0	0		Private home; Church, temple, et
IL	10	6	0	0		Restaurant or deli
IL	10	6	0	0	chicken, buffalo wings	Day care center
IL	11	8	0	0		Workplace, not cafeteria
IL	11	7	1	0		Restaurant or deli
IL	11	14	1	0		Church, temple, etc
IL	11	12	2	0		Restaurant or deli
IL	11	7	0	0		Restaurant or deli
IL	12	2	0	0		Restaurant or deli
IL	12	18	0	0		Church, temple, etc
IL	12	2	0	0		Restaurant or deli
IL	12	7				Private home
IL	12	12	1	0		Office setting
KS	1	2	0	0		Restaurant or deli
KS	2	10	0	0		Office setting
KS	2	4	0	0	chinese	Restaurant or deli
KS	3	13	0	0	lasagna, unspecified	School
KS	5	3	1	0		Restaurant or deli
KS	6	8	0	0		Restaurant or deli
KS	6	4	0	0	fried rice; chinese	Restaurant or deli
KS	7	5	0	0		Restaurant or deli
KS	7	4	0	0		Restaurant or deli
KS	8	2	0	0		Restaurant or deli
KS	10	9	0	0		Restaurant or deli
KS	10	3	0	0		Restaurant or deli
KS	10	3	0	0		Restaurant or deli
KS	11	3	0	0	chicken salad	Office setting
KS	11	5	0	0		Restaurant or deli
KS	12	5	0	0		Restaurant or deli

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Foodborne Outbreaks Due to Unknown Etiologies, 2006						
State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
KS	12	2	1	0		Restaurant or deli
KS	12	2	0	0		Restaurant or deli
KS	12	2	0	0		Restaurant or deli
KY	12	5	2	0		Workplace, not cafeteria
MA	2	20	0	0		Other
MA	5	28				
MA	8	7				
MD	1	3	0	0		Private home
MD	1	3	0	0	sandwich, deli	Restaurant or deli
MD	1	2	0	0		Restaurant or deli
MD	2	6	0	0		Other
MD	2	4	0	0		Banquet facility
MD	3	5	0	0	pizza, cheese	Private home
MD	4	16	0	0		Banquet facility
MD	6	6	0	0	milkshake	Restaurant or deli
MD	8	46	0	0		School
MD	8	2	0	0		Restaurant or deli
MD	9	5	0	0	crab salad; soup, crab	Restaurant or deli
MD	10	2	0	0	duck, other	Restaurant or deli
MD	10	26	1	0	pork, other	Banquet facility
MD	11	41	0	0	stuffing, unspecified	Office setting
MD	12	5	0	0	sandwich, club; sandwich, chicken;	Restaurant or deli
MD	12	23	0	0		Restaurant or deli; Banquet facility
MD	12	4	0	0		Private home
MD	12	4	0	0	rice, unspecified	Private home
ME	5	14				Nursing home
ME	9	17				Other
ME	10	106				
ME	11	9				
ME	11	34				
ME	12	8	4	0		
ME	12	25				
ME	12	20				
MI	1	38	0	0	house salad	Other
MI	1	62	4	0	lettuce-based salads unspecified	Restaurant or deli; Private home
MI	1	43	0	0	chicken, nuggets/fingers; french fries	Restaurant or deli
MI	2	5	0	0		Restaurant or deli
MI	2	100	0	0	ground beef, sloppy joe	School
MI	2	4	0	0	salad, unspecified; potato, mashed	Restaurant or deli
MI	3	7	0	0	salad, unspecified	Private home
MI	5	20	0	0		School
MI	5	16	1			Private home
MI	6	2				Restaurant or deli
MI	6	13	0	0		Restaurant or deli
MI	7	2	0	0		Restaurant or deli
MI	7	17	1	0		Restaurant or deli
MI	7	5	1	0		Other; Restaurant or deli
MI	7	3	0	0		Restaurant or deli
MI	9	3	0	0	hot dog, unspecified; soda, unspecified;	Private home
MI	9	3	0	0		Restaurant or deli
MI	9	4	0	0		Restaurant or deli
MI	10	26	0	0	beans, baked	Office setting

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Foodborne Outbreaks Due to Unknown Etiologies, 2006						
State	Month	ILL	Hospitalizations	Deaths	Vehicle*	Location
MI	10	46		0	stuffing, unspecified	Banquet facility
MI	11	4	0	0		Restaurant or deli
MI	11	44	0	0	turkey, baked	Workplace, not cafeteria
MI	11	39	0	0		Wedding reception;
MI	11	51	3	0	turkey, baked	Nursing home
MI	12	2	1	0		Private home
MI	12	12	0	0		Restaurant or deli
MN	1	5	0	0	unspecified fish; mussels, unspecified; ice cream/yogurt	Restaurant or deli
MN	5	10	0	0	sandwich, submarine	Workplace, not cafeteria
MN	11	12	0	0	carrots, unspecified	Restaurant or deli
MO	2	140	0	0	spaghetti, unspecified; spaghetti, unspecified	Other
MO	8	15	0	0		School
MO	9	8	0	0	chicken wrap	School
MO	12	14	0	0		Restaurant or deli
MS	10	13				Restaurant or deli
MT	2	5				Restaurant or deli
MT	3	6				
MT	3	9	0	0		Other
MT	6	25	3	0		Wedding reception;
NC	3	10	0	0	house salad	Office setting
NC	9	8	0	0		Office setting
NC	11	6				Private home
ND	9	21	0	0		Picnic;
NH	11	20	0	0		Private home
NJ	3	31				
NJ	4	11				
NJ	6	30				
NY	1	21	0	0	sandwich, deli	Workplace, not cafeteria
NY	1	7	0	0		Restaurant or deli
NY	1	15	1	0		Restaurant or deli
NY	1	3	0	0		Restaurant or deli
NY	1	16	0	0	chicken	Restaurant or deli
NY	1	16	3	0		Office setting
NY	2	4	0	0		Restaurant or deli
NY	2	7	1	0	chicken, fried	Private home
NY	2	15	0	0		Banquet facility
NY	3	3	0	0	chutney	Restaurant or deli
NY	3	18	0	0	chicken, buffalo wings	Other
NY	4	12	0	0		Restaurant or deli
NY	4	15	0	0		Restaurant or deli
NY	4	14	0	0	squid, fried	Restaurant or deli
NY	5	23	0	0	green salad	Restaurant or deli
NY	5	6	0	0	applesauce	School
NY	6	15	1	0	quiche; stuffed mushroom;	Banquet facility
NY	6	24	0	0	lobster salad; sweet rice with crabmeat; shark fin soup	Restaurant or deli
NY	6	3	0	0	green salad	Restaurant or deli
NY	6	3	0	0	falafel	Restaurant or deli
NY	7	3	0	0		Restaurant or deli
NY	7	12	0	0		Restaurant or deli
NY	7	5	0	0		Restaurant or deli

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Foodborne Outbreaks Due to Unknown Etiologies, 2006						
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NY	7	4	0	0		Restaurant or deli
NY	7	3	0	0		Restaurant or deli
NY	8	18	0	0	green salad	Banquet facility
NY	9	7	0	0		Office setting
NY	10	22	0	0		Restaurant or deli
NY	11	5	0	0		Restaurant or deli
NY	11	44	0	0		Restaurant or deli; Banquet facility
NY	11	4	0	0		Hospital
NY	12	7	0	0		Restaurant or deli
OH	1	4				Restaurant or deli
OH	1	2				Private home
OH	2	2				Restaurant or deli
OH	2	4				Restaurant or deli
OH	3	8	0	0	stew/chili, other	Workplace, not cafeteria
OH	3	2	0	0		Private home
OH	3	2	0	0		Restaurant or deli
OH	3	2	0	0	chicken, other	Restaurant or deli
OH	4	7	1	0		Private home
OH	4	8	0	0	pizza, unspecified	Restaurant or deli
OH	4	5	0	0		Restaurant or deli
OH	4	2			sandwich, other	Restaurant or deli
OH	4	2	0	0		School
OH	5	2	0	0	cheese sauce	Restaurant or deli
OH	5	3	0	0		Private home
OH	6	2	0	0		Private home
OH	6	2		0		Restaurant or deli
OH	6	3	0	0		Restaurant or deli
OH	6	2			ground beef, cheeseburger	Restaurant or deli
OH	7	2	0	0		Picnic
OH	7	2				Private home
OH	7	16	2			Restaurant or deli; Wedding reception
OH	8	2				Restaurant or deli
OH	8	3		0		Private home
OH	8	2				Restaurant or deli
OH	8	4				
OH	8	4				Restaurant or deli
OH	9	7		0	pizza, unspecified	Private home
OH	10	15	0	0	sausage, unspecified	Picnic;
OH	10	25				Wedding reception;
OH	10	2			chicken, BBQ	Restaurant or deli
OH	10	5	0	0	sandwich, deli	
OH	10	6				Restaurant or deli
OH	11	4			chicken, chimichanga	Restaurant or deli
OH	11	3	0	0		Private home
OH	11	4		0		Private home
OH	11	7	0	0	sandwich, deli	Office setting
OH	11	9		0		Office setting
OH	12	20				Other
OH	12	6	0	0		Restaurant or deli
OH	12	2	0	0		Restaurant or deli
OH	12	2				Restaurant or deli
OH	12	20				Private home

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OH	12	5	0	0		Restaurant or deli; Private home
OH	12	4	0	0		Private home
OH	12	7				Restaurant or deli
OH	12	8				Private home
OR	7	34	0	0		Fair, festival, temporary mobile service
PA	4	6	0	0		Restaurant or deli
PA	5	9	1	0	chicken, fried	Private home
PA	7	6	0	0		Restaurant or deli
PA	7	8	0	0		Private home
PA	7	50	0	0		Restaurant or deli
PA	10	5	0	0		Church, temple, etc
PA	10	3	0	0		Restaurant or deli
TN	1	8	0	0		Restaurant or deli
TN	1	11	0	0		Restaurant or deli
TN	2	8	0	0	pizza, unspecified	Private home
TN	3	3	0	0		Restaurant or deli
TN	3	17	0	0	couscous	Restaurant or deli; Banquet facility
TN	7	4	0	0		Restaurant or deli
TN	8	3	0	0		Restaurant or deli
TN	10	15	0	0		Banquet facility
TN	11	4	0	0		Restaurant or deli
TN	12	8	0	0		Restaurant or deli
TX	10	41	0	0	cake, brownie	School
UT	9	26	0	0		Restaurant or deli
WA	1	5	0			Restaurant or deli
WA	2	3	1	0	ethnic style, unspecified	Private home
WA	3	7	0	0		Restaurant or deli
WA	6	3	0	0		Restaurant or deli
WA	6	5	0	0	lettuce-based salads unspecified	Restaurant or deli
WA	6	2			caesar salad	Restaurant or deli
WA	6	5	1		fried rice, unspecified	Private home
WA	7	2	0	0	clams, steamed; mussels, steamed;	Restaurant or deli
WA	8	2				Restaurant or deli
WA	8	3				Restaurant or deli
WA	8	4	0	0		Restaurant or deli
WA	10	4	1	0		Restaurant or deli
WA	12	2	0	0		Restaurant or deli
WA	12	3	0	0		Restaurant or deli
WV	3	23	0	0		Banquet facility
WV	6	22	1	0		Banquet facility
WV	11	27	0	0	turkey, baked	School

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